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Electrical Contracting

With Which Is Incorporated

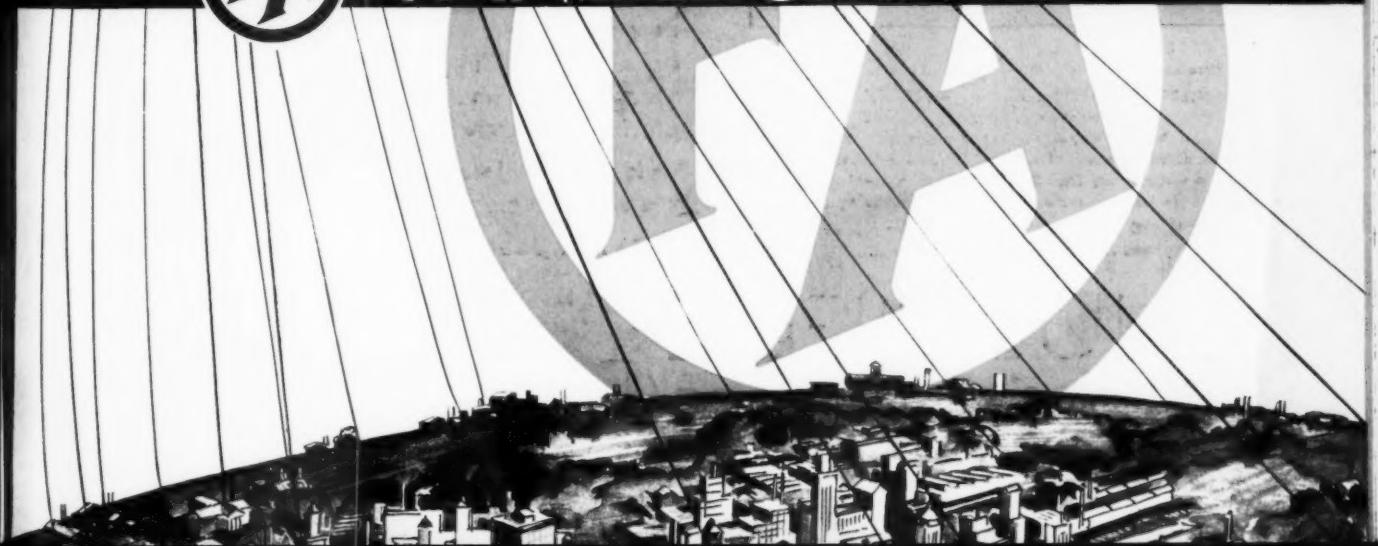
The Electragist



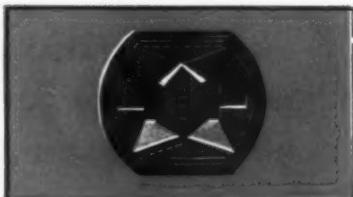
We will be glad to welcome our friends at the Hotel Schroeder, Milwaukee, during the convention, August 18, 19, 20. Come in to see us.

Frank Adam
ELECTRIC COMPANY
ST. LOUIS

THE WIRES OF
THE WORLD LEAD TO
FA PANELBOARDS



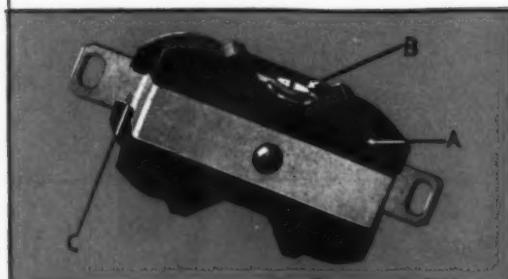
A MOISTURE-PROOF BASE



UNIQUE SLOT-FINDERS—New Bakelite face of modernistic design incorporates unique Slot-Finders. A noteworthy convenience. No groping. Blades find their slots automatically, quickly and surely.



ONE-PIECE CONTACT SPRING—Guarantees perfect alignment and a positive electrical connection. Made of finest phosphor bronze.



A—NEW SOLID COMPOSITION BASE, moisture-proof, eliminates the fibre back which is objectionable under certain conditions.

B—BETTER WIRING AND INSULATING FACILITIES. Larger screws to hold No. 10 wire when desired. Binding plates and screws are in deep pockets with heavy side bosses of composition, well protected and insulated from side of wall and box. Wide Bakelite barriers insulate wiring cavity from face plate. Tapped bushing for plate screw is grounded to mounting strap, thus grounding the plate.

C—MOUNTING STRAP LOCKED TO FACE, for greater strength and rigidity, and more accurate spring alignment.



Another superior feature of the new HUBBELL OUTLET....

EVERY condition of service was considered in designing the new Hubbell Outlet. For instance, any possible trouble due to moisture has been forestalled with a new solid composition base. On many jobs this moisture-proof base provides a distinct advantage over a fibre back outlet.

It is just one of the superior features found in this new Outlet. Of equal importance is the new Bakelite face with its unique Slot-Finders...the improved wiring and insulating facilities...and the provisions for more accurate spring alignment.

Obtain a sample of this better Outlet and see for yourself why contractors everywhere are installing it.

HARVEY HUBBELL, INC., BRIDGEPORT, CONN.

HUBBELL *convenience* OUTLETS

Electrical Contracting

With Which Is Incorporated The Electragist

Victor A. Hanson,
Managing Editor

S. B. WILLIAMS
Editor and General Manager

Coit A. Smith
Western Field Editor

Vol. 29

AUGUST, 1930

No. 10

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RESALE PRICE NEWS

Prices continue to show a downward trend, particularly of those products in which copper is an important element. Price reductions this month have occurred in:

Outlet boxes and hangers
Cords
Fittings
Receptacles
Ground rods
Wire, all types.

Minor price changes will also be found in:

Attachment plugs
Receptacle plates and plugs

In line with our policy of keeping the list as usable as possible we are constantly rearranging price set-ups and increasing listings. Changes this month are as follows:

Rearrangement of outlet box headings
Additions to attachment plug listings including 40 amp. caps
Addition of Killark line and an increased listing of Square D panel boards
Addition of receptacle plates
Addition of three flush receptacles and a new set-up on receptacle combinations
New set-up and increased listings of sign receptacles
Addition of cadmium or galvanized Square D switches and outdoor meter boxes
Additional listings of Killark transformers.

Published monthly. Entered as second class matter November 14, 1928, at the post office at Chicago, Illinois, under the Act of March 3, 1879. Copyright, 1930, by The Electrical Trade Publishing Company.
Subscription: U. S., \$2.00; Foreign, including Canada, \$3.00. Single copies, 20 cents.

ELECTRICAL TRADE PUBLISHING COMPANY

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6

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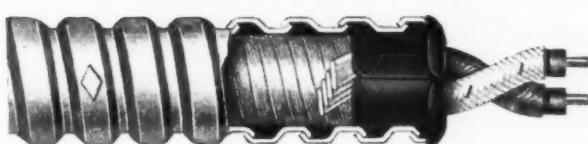
RIGID STEEL CONDUIT	
(a)	STANDARD ZINC TREATED AND CLEAR ENAMELED
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FLEXIBLE STEEL CONDUIT	
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(b)	STEELFLEX AND BRASSFLEX FLEXIBLE CONDUIT FOR AUTOMOBILE AIRING
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NON-METALLIC SHEATHED CABLE	
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Wires and Cables	
CARBURETOR RUBBER COVERED WEATHERPROOF FLEXIBLE CORDS	
LEAD COATED PARKWAY PAPER AND CAMBRIC	

N.A.
ELECTRIC
DUCT
WIRE
SYSTEM
WIRE

3

A.B.C. ARMORED CABLE

A



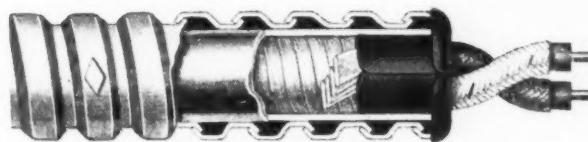
NATIONAL FLEXSTEEL A. B. C. DOUBLE ARMORED CABLE WITH KRAFT ARMOR AND ANTI-SHORT BUSHING.

B



OVALFLEX—FLAT A. B. C. ARMORED CABLE—WITH KRAFT ARMOR AND ANTI-SHORT BUSHING—FOR SURFACE AND UNDERPLASTER TWO OR THREE WIRE CIRCUITS.

C



FLEXSTEEL A. B. C. ARMORED CABLE LEAD COVERED—WITH LEAD SHEATH—KRAFT ARMOR AND ANTI-SHORT BUSHING.

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FLEXSTEEL A. B. C. ARMORED REINFORCED LAMP CORDS PROTECTED BY RUBBER SHEATH—KRAFT ARMOR AND ANTI-SHORT BUSHING.

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FLEXIBLE METAL TUBING

METAL MOLDING

FITTINGS & DEVICES

NON-METALL FLEXIBLE TUBING

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RomeX—lighter to handle

There's no unnecessary weight to RomeX. Its strong, flexible, non-metallic sheath makes RomeX light and easy to handle.

RomeX needs no fittings but a few simple straps. It is strung with just the few hand tools you always carry.

Fast to install, clean, convenient —these are reasons why RomeX means quicker, easier work; and quicker, easier profits.

GENERAL CABLE CORPORATION

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The Known and Unknown

WHOMO constitutes the electrical construction market? How many business units are there? Where are they located?

ELECTRICAL CONTRACTING, after studying these questions for many months, has come to the conclusion that the electrical construction market is similar to every other mass market in that 90 per cent or more of its operations go through the recognized channels while the remainder is handled by unknowns.

Wiremen working today for themselves and tomorrow for a contractor, industrial plant and central station employees doing odd jobs after hours, handy men who do all sorts of odd jobs are undoubtedly doing a considerable volume of wiring business in the aggregate.

Who they are, where they are located, how many there are of them, it is virtually impossible to learn. In the electrical construction market they are the unknown.

Some will buy from the electrical jobber and receive contractor's prices but generally speaking the jobbers do not encourage this class. Their purchases for the most part are made from the mail-order houses, five and ten cent stores, hardware stores, etc.

• • •

IT will never be possible for the manufacturer to reach this class because they can never be located. And even if they could be reached, the cost would be excessive. Individually

their purchases are extremely small, it is only in the aggregate that they appear important as a market.

The known or locatable market consists of between 25,000 and 30,000 electrical contractors. They are located wherever electrical service is available. They account for better than 90 per cent of the total market and almost all of the new building wiring market.

ELECTRICAL CONTRACTING has already located approximately 25,000 electrical contractors and is now engaged in locating the remaining 5,000. Then, for the first time, will the entire locatable market be known and made available to the industry.

• • •

IN searching out this market ELECTRICAL CONTRACTING has two motives: First, to help all of the electrical contractors secure a better and broader knowledge of available materials and tools, and second, to fill the demand of the manufacturers for some means of contacting the fringing element of the contracting industry.

The fringing element represents a vast uncultivated field—one in which the right kind of efforts should show remarkable results.

This fringing element has been called harsh names but to ELECTRICAL CONTRACTING it represents an opportunity for service—service to the contracting business and service to the manufacturers.

NEW BUILDINGS MACHINERY METHODS



New standards of quality and service

—and now at MARION, INDIANA, we have what is really a brand new mill!

New buildings, improved machinery, and tried-and-tested manufacturing methods make our Marion plant as fine as any in the country.

The successful policies and practices, which made the products from our PAWTUCKET, RHODE ISLAND mill so acceptable, are also in effect at Marion. Now . . . in two fine, modern plants, strategically located for prompt service to the entire industry, we manufacture rubber-covered wire and portable cords of the same dependable quality.

• | Our Marion mill also makes a complete line | •
of Parkway and Varnished Cambric Cable.

ANACONDA WIRE & CABLE COMPANY

General Offices: 25 Broadway, New York City
Chicago Office: 20 North Wacker Drive Building

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Electrical Contracting

With Which Is Incorporated The Electragist

AUGUST, 1930

*CUSTOMERS have to be
made to WANT
what they need*
SAYS
John Wise



"SO it's book-readin' you vas doink?" said Moe Unterbidder, as he came into the restaurant and found John Wise poring over a small volume while his coffee cooled.

"Yeah," replied John Wise, "I'm studying the outside of my business."

"Vat you mean?—outside. Business iss business: it ain'd got no inside unt outsides."

"Yes it has," said John. "The inside is the mechanical part—handling circuits and pipe and fittings. The outside of the business is handling men."

"Me, I hantle 'em mitt d' fear uff Gott," declared Moe. "Come they don't work right I fire 'em offen d' chob."

"But customers are men also. How do you handle **them**?"

"I don't. Customers hantle **me**—unt how! Py golly, it iss ragged they run me mitt bids unt estimates unt saying always I vas too high."

"Well, Moe, that's why I'm reading this book. I decided that while I know a lot about wiring, there's a lot for me to learn about selling."

"This book says selling means making the customer **want** what you offer him. Frinstance, he calls you in and says, 'Bid on this job.' Most contractors just figure cheap, but the one who knows how to handle men says, 'These specifications are lousy: how about a convenience outlet in the living room for your radio, and a light in this closet so you can see which pair of pants to put on tomorrow, and a place to plug in the electric refrigerator, and howinell is yer wife going to run her washer and ironer if you only have one ceiling socket in the cellar?'

"Of course," continued John Wise, "all this has got to be said tactfully or the customer will bounce you out on yer ear. That's why I'm reading this book. It tells me how to frame up my sales talk so the customer will **want** what I offer him. Trouble with us fellows in the contracting business is that we don't make 'em **want** our goods."



In 6 out of every *is a \$59.00*

FIfty-nine dollars is the cost of the average wiring job resulting from reinspection. This average is of the typical installations reported by the inspection departments of the cities surveyed. Outside of the average jobs it is reported that wiring jobs resulting from reinspection range all the way up to \$200,000.

If it were possible to reinspect all premises it is estimated that the resulting average increase in volume of wiring work would be 65 per cent. This, of course, is hard to estimate and varies greatly in different cities. One city of 7,000 population estimates that the resulting work would amount to \$150,000, and another city of 23,000 population estimates \$50,000 worth of work. A city of 49,000 population reports that there would be enough work from adequate reinspection to keep all of its contractors busy for five years. Every building requires some rewiring and 30 per cent need entirely new installations reports one city of 104,000 population, while another of 208,000 population says that the first year of reinspection would bring \$50,000 in additional business and each year thereafter would bring \$30,000 in extra work. Another city states that 85 per cent of its 86,700 buildings contain violations.

The average of the number of jobs needing correction reported by inspection departments of these cities is 63 per cent of all

Adequate reinspection will result in a considerable increase in the wiring business for the electrical contractor according to a survey of 150 cities in 38 states made by ELECTRICAL CONTRACTING. Sixty-three per cent of all premises reinspected are in need of correction and the average correction job amounts to \$59.00, the survey shows.



10 Buildings there WIRING JOB

Percentage of cities reporting various conditions needing correction as frequently found on reinspection.

Wiring installed by amateurs.	69%
Improper use of flexible cords.	65%
Overloaded circuits and feeders.	55%
Bridged and oversized fuses.	50%
Improper services on meter panels.	22%
Poor joints.	13%
Dangerous fixtures	13%
Bad grounds.	11%

jobs reinspected. Fifty-three per cent of those reporting state that 75 per cent or more of the re-inspections find bad conditions.

Amateur wiring is the most common violation. Sixty-nine per cent of the cities report that this is one of the violations most frequently found. Next is the improper use of flexible cords, 65 per cent of the cities reported this as a common violation. Fifty-five per cent of the cities report overloaded circuits and feeders as one of the frequent violations and 50 per cent state that bridged and oversized fuses are often found. As other frequent violations, 22 per cent report improper service or meter panels, 13 per cent report poor joints, 13 per cent report dangerous fixtures and 11 per cent report bad grounds.

This is the first of a series of three articles giving the results from a survey on reinspection made by ELECTRICAL CONTRACTING in 150 cities. The other two articles which will appear in early issues will cover "Provisions for Reinspection" and "What is Being Done by Different Cities."

As soon as city councils reconvene in the fall new electrical ordinances or changes therein will be proposed by many cities. This survey has been made for the purpose of encouraging electrical contractors in those cities where ordinances are being changed to insist upon adequate provisions for reinspection.

The ANSWER *to* Range Wiring COSTS

How much does it cost to wire
for a range?

This question has been a matter of major controversy in the electrical industry for some time.

ELECTRICAL CONTRACTING in its March, 1930, issue, undertook to investigate range wiring and as a result has established the following two important facts:

1. *A real fundamental reason why costs vary from \$35.00 to \$85.00 per installation has been found.*
2. *A reasonable time in man-hours for one particular installation method has been fairly well established.*

THE electrical industry must have ranges wired, it must have the work done right, the cost of the wiring must not be so high as to create undue resistance to the sale of the range, and the contractor or anyone else who does the work must make a fair profit. But how?

When this matter of range wiring is really investigated, it becomes apparent that there are plenty of reasons why the industry is all at sea on the subject.

In the first place, the great argument has always been on the cost of the job; but almost everyone has been arguing about an effect and has totally neglected the cause, hence the argument has been fruitless.

A considerable number of the replies to ELECTRICAL CONTRACTING's questionnaire appended this note, or words to this effect: "How does anyone get by with this kind of job? We can't in our town. We have to do the work this way;—." Here is the key to the variations in costs, also to the problem of getting costs down to a reasonable figure.

The methods of handling range wiring jobs in different cities involve real differences in installation costs. If the utility that sells the range delivers it to the house, uncrates it and sets it in position, there is quite a little reduction in the contractor's cost. If, on the other hand, the contractor must pick the range up some place, deliver it, uncrate it, take down the range already in the kitchen and set up the electric range, he may find, as many have found, a non-productive cost running anywhere from five to twenty dollars. As many range installations are made out in the outlying districts where gas is not available, this non-productive expense has, at times, run so high as to discourage contractors from handling range wiring.

Any attempt to solve this problem of range wiring should include a fairly comprehensive set of recommendations as to relation between contractor and seller of the range.

Another reason why the industry has made little progress toward the solution of this problem is the complexity of the problem itself.

The following are among the numerous problems involved in range wiring which contribute largely to the variation in costs:

- 1. Range wiring is installed in both new houses and houses already wired.*
- 2. Both single meter and two-meter rate systems are in use.*
- 3. The allowance of adequate service capacity for lighting and small appliance loads.*
- 4. The existence of various types of wiring.*
- 5. Different types of grounding practice.*
- 6. The intricate interpretation of Code rules.*

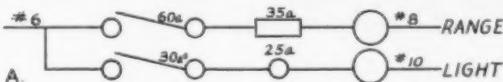
It is obvious, therefore, that the reason for variations in range wiring costs is

NO STANDARDS

WHAT? NO STANDARDS?

Cost Data

THE questionnaire in ELECTRICAL CONTRACTING asked for the time in man-hours required to complete a specific type of range wiring installation. This was in an old house with an existing wiring installation for lighting as shown in diagram. Two



meters were to be used, the service was to consist of three No. 6 conductors in 1-in. conduit and the range circuit was to be three No. 8 as shown in diagram A.

The average times given for installing the work complete with three different types of wiring used for the range circuit were as follows:

1. *Armored cable—10.6 man-hours.*
2. *Non-metallic sheathed cable—10.5 man-hours.*
3. *Rigid Conduit—13.3 man-hours.*

A number of the contractors replying have done a large amount of this class of work and have kept careful cost records. That the above times fairly represent the averages of a large number of jobs is justifiable. Some jobs will run considerably under or over these figures.

From the labor data brought forth by the questionnaire, and from other information accompanying some of the replies it was found that a complete estimate could be made of the cost of the installation. In making this estimate, the specified "total length of runs" is taken as the total length of each one of the three conductors for both the service and the range circuit. Cost records of a large number of house wiring installations show quite conclusively that the average length of conduit required for the service entrance to a two-story house is 20 ft.

Each of the three estimated totals must of course be corrected as required to correspond to actual material costs and wage rates. The labor rate used, \$1.15 per

hour, is close to the average figure obtained from the replies to the questionnaires.

Estimate According to Specified Layout

20 ft. 1 in. conduit galv.	\$ 2.25
1 1 in. service head	.40
1 1 in. L fitting	.80
1 1 in. grounding bushing	.25
4 1 in. pipe straps	.04
12 ft. $\frac{3}{4}$ in. conduit galv.	.73
1 $\frac{3}{4}$ in. grounding bushing	.17
1 Grounding fitting	.86
75 ft. No. 6 R.C. stranded	1.60
14 ft. No. 8 R.C. solid	.21
1 $\frac{3}{4}$ in. nipple 12 in. long	.10
2 $\frac{3}{4}$ in. locknuts and bushings	.03
7 ft. No. 10 R.C. wire	.08
1 Meter board	2.00
Total of above items	
1 60 amp. meter service switch	\$10.00
2 35 amp. fuses	.30
Total \$10.30	

Range circuit in non-metallic sheathed cable:

25 ft. No. 8, 3-cond. non-metallic sheathed cable	\$ 3.05
1 1 in. pipe nipple 6 in. long	1.20
1 1 in. floor flange	.20
2 1 in. bushings	.06
8.5 hrs. Labor, \$1.15 per hr.	9.78
Conduit, wire, etc., for service and ground	9.52
Service switch	10.30
Total prime cost	
	\$34.11

Range circuit in armored cable:

25 ft. No. 8, 3-cond. armored cable	\$ 5.25
1 1 in. pipe nipple 6 in. long	1.20
1 1 in. floor flange	.20
2 1 in. bushings	.06
8.5 hrs. Labor, \$1.15 per hr.	9.78
Conduit, wire, etc., for service and ground	9.52
Service switch	10.30
Total prime cost	
	\$36.31

Range circuit in rigid conduit:

23 ft. $\frac{3}{4}$ in. conduit galv.	\$ 1.77
1 $\frac{3}{4}$ in. L fitting	.41
2 $\frac{3}{4}$ in. locknuts and bushings	.04
75 ft. No. 8 R.C. solid	1.13
13.5 hrs. Labor, \$1.15 per hr.	15.53
Conduit, wire, etc., for service and ground	9.52
Service switch	10.30
Total prime cost	
	\$38.70

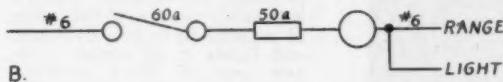
Some Comments

A question that must be considered relates to the service capacity required to provide a full measure of adequacy for a given house. Under specifications which are believed to provide a reasonable but not excessive degree of adequacy, a service capacity of 2900 watts would be sufficient for a house having a total floor area not larger than 950 sq. ft. This would be the area in a one-story house 25 ft. x 38 ft., or a two-story house 20 ft. x 24 ft.—a very small house.

The capacity available for the lighting and small appliance load can be doubled by changing the lighting feeder from 2-wire to 3-wire. If the two-meter plan is retained, to make this change will involve the substitution of a 30 amp. 3-wire meter service switch for the old switch. The cost of this switch will be about \$3.25. Additional labor will be required to remove the old switch, mount and connect the new switch, and change the branch circuit cutouts to a 3-wire feeder connection. About 2 hours must be allowed for this work, costing, at the assumed rate, \$2.30. The total additional cost for this plan will therefore be \$5.55.

With the 3-wire lighting supply, 15 amp. fuses can be used in the lighting feeder. There will then be available 3450 watts for lighting and appliances, which under the specifications referred to above would be sufficient for a house having a total floor area of 1225 sq. ft.

A plan recently approved by the Northwest Section of the I. A. E. I. employs the connections shown by the following diagram:



This is a single-meter arrangement and it is required that the range circuit shall be the same size as the service conductors, in order that both may be suitably protected by one set of fuses. No main lighting fuse is required if the connection from the service switch to the lighting cutouts is not over 3 ft. long. As compared with the plan on which the estimate is based, the extra cost here will be merely the cost of the No. 6 range circuit in place of No. 8. The range circuit costs and total costs should be approximately as follows:

Non-metallic sheathed cable:

25 ft. No. 6, 3-cond. non-metallic sheathed cable..	\$ 4.01
1 1 1/4 in. pipe nipple 6 in. long.....	1.20
1 1 1/4 in. floor flange .....	.22
2 1 in. bushings .....	.06
9.5 hrs. Labor, \$1.15 per hr.....	10.93
Conduit, wire, etc., for service and ground	9.52
Service switch	10.30
Total cost	\$36.24

Armored cable:

25 ft. No. 6, 3-cond. armored cable.....	\$ 7.50
1 1 1/4 in. pipe nipple, 6 in. long.....	1.20
1 1 1/4 in. floor flange .....	.22
2 1 1/4 in. bushings .....	.08

9.5 hrs. Labor, \$1.15 per hr.....	10.93
Conduit, wire, etc., for service and ground	9.52
Service switch	10.30

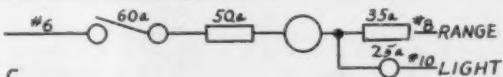
Total cost \$39.75

Rigid conduit:

21 ft. 1 in. conduit galv.....	\$ 2.33
2 1 in. elbows .....	.54
1 1 in. L fitting .....	.80
2 1 in. locknuts and bushings.....	.08
75 ft. No. 6 R.C. stranded.....	3.75
15 hrs. Labor, \$1.15 per hr.....	17.25
Conduit, wire, etc., for service and ground	9.52
Service switch	10.30

Total cost \$44.57

There is now available a 60 amp. meter service switch mounted in box having in a separate compartment two 35-60 amp. fuse bases for a range circuit and four plug fuses for lighting circuits. This device may be used where a new service and a range circuit are to be installed in an already-wired house, by using two of the plug fuses for the lighting feeder to the existing cutout box as shown in Diagram C.



C.

Comparing the estimated cost using this combination device and a No. 8 range circuit with those of the Northwest Section layout in which a No. 6 range circuit must be used, the net difference would be the extra cost of the combination device, over and above the cost of the standard 60 amp. service switch, which amounts to \$3.00. The complete installation costs would therefore be \$37.11 for a non-metallic cable range circuit, \$39.31 for an armored cable range circuit, and \$41.70 for a rigid conduit range circuit, to be compared with \$36.24, \$39.75 and \$44.57 for the Northwest Section Layout.

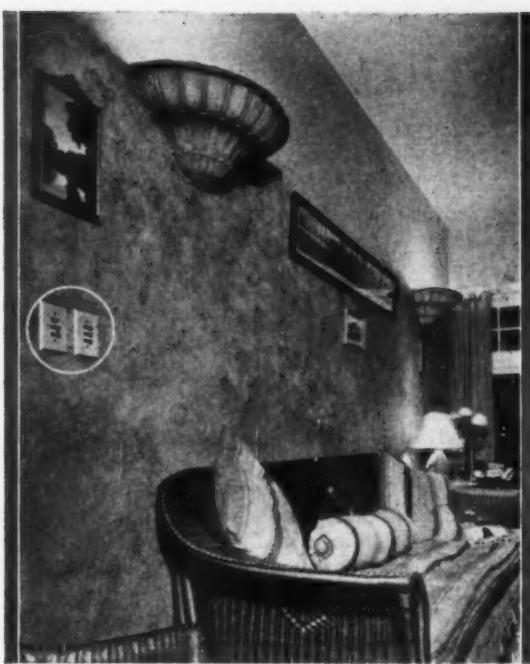
In both of the last two plans discussed, the service is protected by its own fuse, and the main lighting fuse may be 30 amp. if desired. In most localities a 7.5 k.w. range would probably be a more common size than one of 8 k.w. rating. A No. 6 service, having 11500 watts capacity, would therefore provide 4000 watts capacity for lighting and small appliances. This should be fully adequate for a house having 1500 sq. ft. of floor area.

All costs discussed here are of course the contractor's prime costs, or costs of labor and material only, including no allowances for overhead and profit.

In Conclusion—

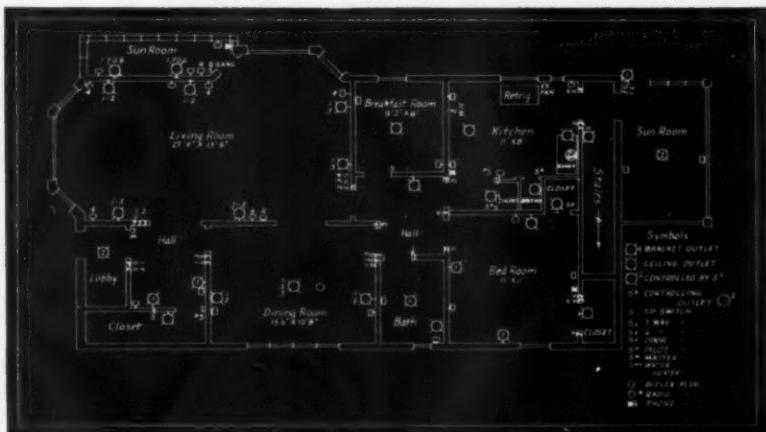
The first step toward reducing the installation cost must be the standardization of the installation methods. The second step will naturally follow the first; this will be the setting up locally or arrangements to put the work on a quantity production basis. With these two prerequisites an accomplished fact, costs will very largely take care of themselves; the trend of costs will be downward, and there need be nothing paradoxical about a coincident upward trend of the installer's profits.

Adequate



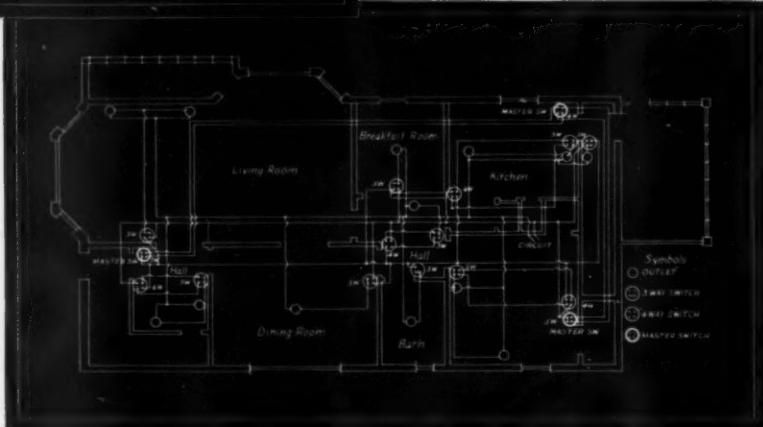
The sun-room is indirectly lighted from 2 plaster wall urns, each containing 6 lamps of different colors. Each color is controlled by a separate switch.

In the final analysis the controlling factor of adequate lighting in the home is the switch. Overhead and bracket pull chain units are not put to the same use as wall switch lighting equipment. An excellent example of flexibility and completeness of lighting service in the home is afforded by George W. C. Patterson, prominent Toronto electrical contractor in the wiring of his new home



Electrical layout showing the provision for switches, making it possible to control the lights of a room from any doorway, and lights in all rooms from any one of three master switches. All closets are equipped with lights controlled by door switches. In the front hall are two brackets with 3-way switches at each door. This installation also includes a bell system and electric door openers.

Diagram of the master control system, making it possible to light all of the rooms from either the front or rear entrances, or from the bedroom. When any one of the master switches is on the lights controlled by it cannot be shut off by the local switches.



Switching the Key to Adequate SERVICE

ROOM—	Ceiling	Outlets		Switches		Duplex	Special
		Brackets	SP.	3-W.	4-W.	Door Rec.	
Sun Room	-	2-6* lt.	6	-	-	3	1-phone, 1-radio
Living Room	-	6-2* lt.	2	3	-	6	1-radio
Breakfast Room... 1	-	-	1	-	-	2	
Center Hall.....	-	1	-	2	1	-	
Kitchen	2	-	-	1	2	2	
Ironing	-	-	1-pilot	-	-	1	
Broom Closet.....	-	1	-	-	-	1	
Linen Closet.....	-	1	-	-	-	1	
Basement Stairs...	-	2	-	1	-	-	
Back Sun-room... 1	-	-	1	-	-	2	
Back Porch.....	-	1	1	-	-	-	
Front Lobby..... 1	-	-	1	-	-	-	
Front Hall.....	-	2	-	3	2	-	1-master switch
Front Hall Closet. -	-	1	-	1	-	1	-
Dining Room.....	1-3* lt. 2-2* lt.	2	1	-	-	3	
Bathroom	1	1	-	-	-	2	
Bedroom	-	3	-	1	2	-	1-master switch and
Bedroom Closets (2) -	2	-	-	-	2	-	1-phone
Garage	3	-	-	1	-	-	3
Basement	11	-	2	-	-	-	3
		21	23	15	16	7	5 31

*Indicates the number of lamps under control of different switches.



In the dining-room are two brackets and a center fixture, each containing two lamps, one amber and one inside frost, under separate control. The center fixture in addition has two lamps for a higher intensity over the table, controlled by another switch.



The living-room is lighted by 6 two-light wall brackets and numerous floor lamps. One lamp in each bracket is inside frost and the other flame tint. Either one of the colors may be controlled independently by wall switches in two locations. All of the convenience outlets are controlled by a switch.

Here's a new one

Housekeeping Outlets

THIS industry is sure adding a lot of ten-cent words to the old vocabulary. The first thing you know, the boys will be keeping their hands clean and learning to thumb Mr. Webster's best seller.

I looked up the specification for the word "adequate" and I find we have been abusing it something terrible.

Adequate (-kwat) a. (adæquatus p.p. of adæquare). Equal to or sufficient for some (specific) requirement; fully sufficient.

Well, there it is. We have done some good work in promoting the idea, but up to the present time we haven't decided in this case, whether Mr. Webster meant sufficient for the industry or for the cash customers.

We broadcast that living rooms, dining rooms, kitchens and the rest of the house must have a certain number of outlets, or the owner won't win a hand painted celluloid frying pan. This system would work swell if we could get to the customer before he has any idea of building a house or buying the furniture.

The whole trouble with the system seems to be, we are trying to teach the public the electrical business, in place of the industry trying to learn a little about housekeeping. I don't believe Mrs. Housekeeper gives a darn about how many outlets are in the house. She is very likely interested in what electricity can do to beautify the home and to reduce the manual efforts of everyday housekeeping.

Take the living room, for instance. If we get a plan with four convenience outlets to be installed, we think we are lucky and let it go at that. A living room is usable for that purpose only to the extent of its wall space that may be used without electrical restriction. A living room without electrical restriction means that every foot of wall space can be used for any piece of furniture and combination of furnishing. And that's not all. If you want to do a real job, just remember that the portables are not located against the wall. They are out from the wall 3 or 4 ft.

If I had paid more attention to my 'rithmetic at dear old Swathmore, I could figure out the sine of the tangent or something or other in that fourth dimension

dope and I could tell you just how far the outlets should be spaced. But it's a holy cinch that 15 or 20 ft. spacing is a terrible job. We have a habit of figuring wall space by illuminating doors, fire places and book cases. That's all wet. We have chairs, lounges, lamps and tables right in front of all these exceptions, so why not give the customers a chance to use the place?

We also cut out the center light. Did you ever try to light up a couple of card tables in the center of the room with portables and did you ever figure how much gin it takes to get the party going in a gloomy, shaded portable lighted room? You're all wrong about that center light.

A living room is used for two very distinct purposes; the quiet shaded family circle requirement and the brilliancy of party night.

Don't get the idea that I am knocking bracket lighting. There is nothing of a decorative nature which will beat the brackets, if we use some intelligence in location. You can't get real practical illumination from brackets unless you forget all about the general appearance of the room and put in about three times as many brackets as

any housekeeper would stand for. You know housekeepers want something else to show off besides the electric work.

How many contractors think of the special occasion outlets and permanently located portables, such as the Christmas tree and wreath location, radio, electric clock, cigar lighter (rather cigarette lighter, now that the whole family is reaching for one instead of a lollipop).

Yes, sir! If we would talk housekeeping instead of the rules and regulations of the business, we could get somewhere in this adequate business in the living room.

You can apply the same system to every room in the house and take it from me your suggestions will be welcomed, and your competitor who can show how to save money, won't get to first base if you sell housekeeping outlets.

I want to say something about the dining room because it is always the worst electrical room in the house. We always try to sell a couple of outlets for the table appliances and we know darn well that about one family in a thousand (outside of the movies) use appliances in the



Convenience Outlet Housekeeping

A lesson by J. WALTER COLLINS

*Secretary Electrical Contractors
Association of Chicago and in-
structor in house wiring sales of
the 54 salesmen in the Chicago
rewiring campaign*

Here's a few you never suggest and every one of them is a housekeeping outlet.

The switch outlet in the front door jamb to light two or more rooms before entering the house.

The addition of a four-way switch to the stairway lights in the main chamber as a burglar alarm.

The long cord outlet in the attic to reach the corners without the help of matches.

The outlet on stair landing for vacuum cleaner.

The ironing outlet in the basement near the best lighted window.

Three outlets flush in top of fireplace for candles and electric clock.

The telephone table outlet in the hall.

The iron outlet in the kitchen that lets the operator face the window. Up to this time we have all figured that ironing was a left-handed job and tripping over cords relieved the monotony of the job.

The porch outlets (plural) and place them to fit the porch, not the shortest run of conduit from the nearest outlet. The one outlet on a porch is a joke and the usual location is two jokes.

dining room.

There are a few other uses for the dining room. I will make a bet with anyone that 90 per cent of all the sewing machines in the country are located in the dining room. The kids do their home work there. The climax of all entertainment happens (wet or dry) in the dining room. Taking it all and all, you will find there is use for about as many outlets necessary for this room as for the "sittin' room."

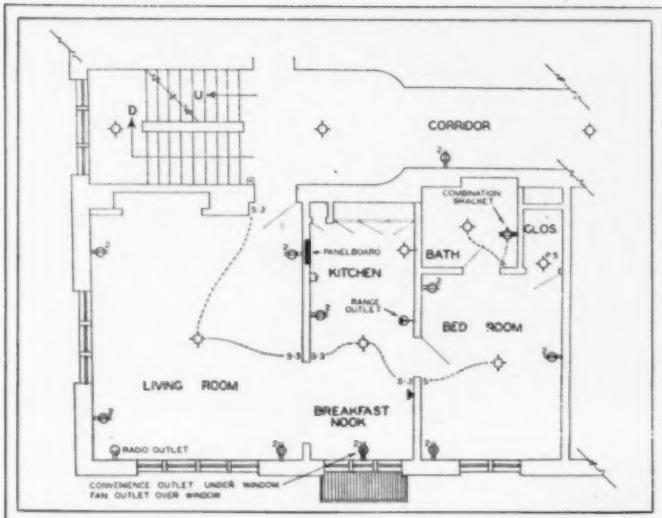
It is not possible in the space allotted to this article to take each room and suggest housekeeping outlets, but the need is there. All we have to do is to take a couple of days off and watch the wife keep house. You'll learn a lot about outlets you never thought of before. You may get yourself into a job of putting in a few outlets at home, but that won't hurt you. Some one may suggest you have been drinking, but you'll live that down.



Planning

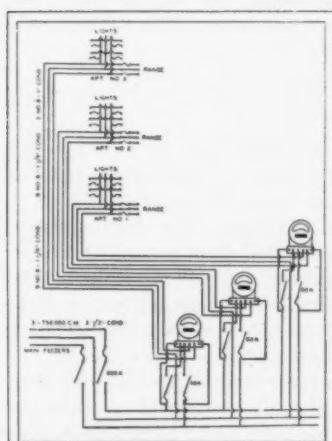
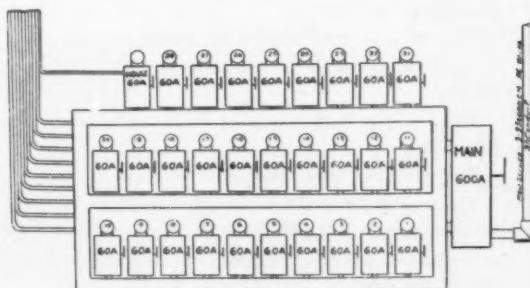
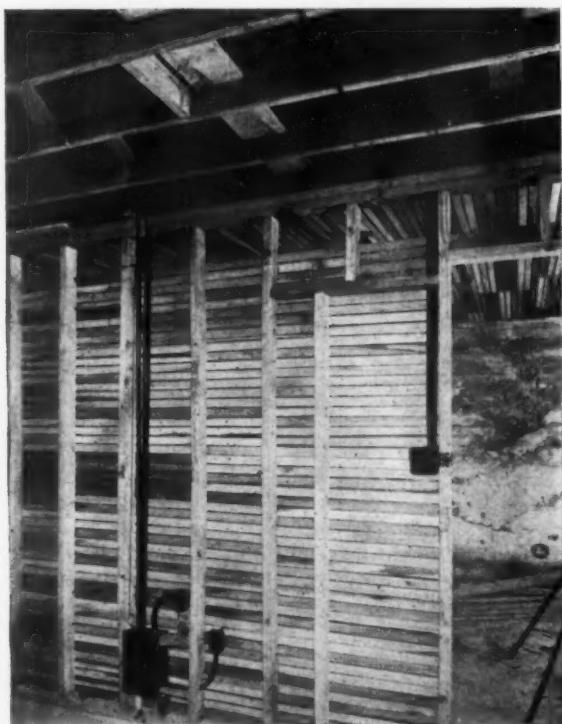
will

Banish



A diagram of the electrical layout in a typical apartment showing the adequate use of 3-way switches and convenient location of outlets. Corridor outlets are spaced 17 ft. apart and each corridor has 3 convenience outlets. Each apartment contains an electric refrigerator, an apartment type electric range and centralized radio.

Each of the 28 apartments is controlled from a service switchboard in the basement. This board consists of 29 60-amp. safety type meter service switches, one of which is for the house lights and is controlled by a clock. The main switch is of the 600-amp. fused type, and the service feeders consist of three 750,000 C. M. cables in 3½ in. conduit. This is considered ample to cover any expected load.



A schematic diagram showing the complete distributing system for three apartments. Each riser conduit runs through all three floors. Nine wires are grouped from basement to first floor, six from first to second floor, and three from second to third floor.

By locating the combination panel containing the range fuses and four-fused lighting branch circuits under the range in the kitchen, only a short run to the range outlet is required and a prominent display of the box is eliminated. Only three of the lighting circuits are wired in, leaving one for future use.

Electrical Contracting, August, 1930

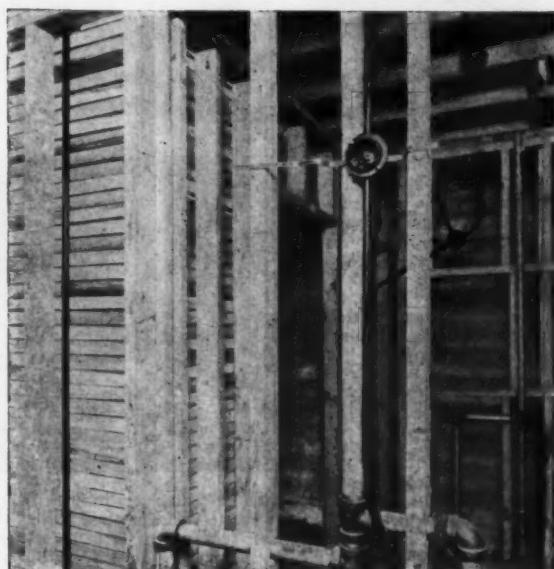
Inadequate circuit wiring in apartments encourages the tenants to make numerous extensions, usually with lamp cord or bell wire, resulting in over-loaded circuits, and feeders and a generally dangerous condition. Inadequate feeder allowance blocks future improvements. Future loads should be provided for as in this Red Seal apartment house, designed in accordance with suggestions of the Electrical League of Utah and wired by the Sugarhouse Electric Co., Salt Lake City.

Lamp Cord wiring in APARTMENT HOUSES



In the breakfast nook is an exhaust fan outlet over the window and an outlet for table appliances under the window. Three-way switches are provided at each entrance and a telephone outlet is located under the cabinet provision at the right.

Looking into the bathroom there is both a ceiling light and a combination convenience outlet and bracket over the cabinet. Both lights are controlled by a switch at the door. In the background is an outlet over the door in the closet.





An eighteen-hole golf course equipped with weatherproof R. L. M. dome reflectors mounted on messenger cables 20 ft. above the ground and spaced 20 ft. apart. The messengers are supported by wooden poles erected along each side of the court. The area lighted is about 120 x 175 ft.

LIGHT MOUNTINGS

for Tom Thumb Golf Courses

In lighting Tom Thumb golf courses types of light mountings vary according to the type of units installed and the size and shape of the course. Care must be taken to prevent direct glare in the players' eyes, yet in general the units may be mounted lower than in tennis for all playing is done with eyes down. An intensity of 6 ft. candles is recommended.



This course, about 110 ft. square, is lighted from four steel poles symmetrically spaced 50 ft. apart. Four R. L. M. reflectors equipped with 750 watt clear lamps are mounted 30 ft. above the ground on each pole.



A combination of pole and standard lighting. This 130 x 60 ft. course is lighted from two poles spaced 70 ft. apart, on each of which are mounted 40 ft. from the ground, 4 aluminum reflectors equipped with 1,000 watt lamps. Supplementing this equipment are 7 ft. metal standards equipped with opal enclosing globes and 100 watt lamps, spaced at intervals of 20 ft. around the course.



Two 75 ft. fabricated steel towers spaced 150 ft. apart in the center of the playing area are used in lighting this 250 x 375 ft. course. Each tower supports 15 concentrating type high bay reflectors equipped with 1500 watt lamps. The greatest distance from the tee to the hole on this course is about 150 ft.

Ten 15 ft. floodlighting standards spaced at intervals of 50 ft. and equipped with combination street lighting, floodlighting units using 1,000 watt lamps, light this course.

Standards of Adequacy for Lighting Branch Circuits

A translation of the recommended foot candle values in the Franklin specifications into watts per square foot, as a guide for determining branch circuit adequacy. The values given will be found a safe and reliable reference in determining a reasonable circuit capacity provision for changes of occupancy during probable useful life of building.

THAT all wiring should be adequate is a statement with which everyone, in or out of the electrical industry, will agree, but to discuss adequacy without defining what is meant by the term is pointless and ineffective. There must first be set up a standard of adequacy, a measuring-stick by which we can determine whether or not a wiring system is or will be adequate, and by means of which we can grade a wiring system as to adequacy.

The Wiring Specifications for Good Lighting issued by the Commercial National Section of the N. E. L. A. have established a fundamental definition of adequacy as respects the capacity of lighting branch circuits, and there are good reasons for the conclusion that this definition is logical and is in entire accord with good engineering practice. Briefly, the principle is that the circuits must have sufficient capacity to provide for lighting that is fully up to present-day standards of best practice, plus about 50 percent excess capacity to provide for special conditions and the demand for higher intensities of illumination that is practically certain to develop in the future.



Standards for illumination intensities in commercial and industrial buildings have been established by the lamp manufacturers and may be found in the Franklin Specification, published by the Society for Electrical Development, Inc. The "recommended" foot-candle values in the Franklin Specification are by no means excessive, and may be taken as representing present-day standards of good practice.

As a contribution to the further study of the subject, and in order to provide a fairly complete guide for determining branch circuit adequacy, the recommended foot-candle values in the Franklin Specification have been translated into terms of watts per square foot and these data are presented in the following tables. In every case, assumptions were made as to the factors affecting the over-all efficiency of the lighting system, viz: the room proportions, color of ceiling and walls, maintenance conditions, type of equipment and size of lamps.

In each case, every effort was made to assume conditions fairly representing average conditions,



and all assumptions were independently checked by other persons familiar with lighting practice. Being necessarily based upon assumptions, the correctness of the results cannot be proven, but it is believed that the data will be found a safe and reliable guide to the design of adequate wiring.

No "factor of safety" or allowance for future increased demand is included in the watts-per-square-foot values. Such an allowance is always necessary if the wiring system is to be considered as truly adequate. A very convenient and practical method of incorporating this necessary factor of safety is to lay out the branch circuits to supply loads not exceeding 1000 watts each, the wattage being determined from the tabulated data. The load on any circuit may then be increased about 50 percent without running too close to the blowing point of a 15 ampere fuse.

In laying out the wiring system for any building, due consideration must always be given to probable and even possible changes of occupancy that would

call for higher wattages. By referring to the table, the experienced engineer can see at a glance what wattage is required for each possible use of the given space and can readily decide what circuit capacity is required in order to make reasonable provision for changes of occupancy.

It should of course be understood that this very brief discussion is limited to one feature of adequacy only, the capacity of the branch circuits for supplying the ceiling outlets for general lighting. Numerous other outlets and additional circuits must be provided in stores, offices and many other occupancies. A considerable number of other items must be taken into account and properly provided for before the wiring system can be considered as adequate in all respects. It should also be understood that the data is intended to be used only in the design of wiring systems. Such data is not suitable for use in the design of systems of illumination and no attempt should be made to apply it to this use.



Industrial Interiors

	Watts per Sq. Ft.
1. Aisles, Stairways, Passageways	1.0
2. Assembling—	
a. Rough	1.0
b. Medium	2.0
c. Fine	4.0
d. Extra Fine*	1.5
3. Automobile Manufacturing—	
a. Automatic Screw Machines	2.0
b. Assembly Line	2.0
c. Frame Assembly	1.5
d. Tool Making	4.0
e. Body Manufacturing—Assembly, Finishing, and Inspecting*	1.5
4. Bakeries	2.0
5. Book Binding—	
a. Folding, Assembling, Pasting, etc.	1.5
b. Cutting, Punching and Stitching	2.5
c. Embossing	3.0
6. Candy Making	2.5
7. Canning and Preserving	2.0
8. Chemical Works—	
a. Hand Furnaces, Boiling Tanks, Stationary Driers, Stationary or Gravity Crystallizing	1.0
b. Mechanical Furnaces, Generators and Stills, Mechanical Driers, Evaporators, Filtration, Mechanical Crystallizing, Bleaching	1.0
c. Tanks for Cooking, Extractors, Percolators, Nitrators, Electrolytic Cells	1.5
9. Clay Products and Cements—	
a. Grinding, Filter Presses, Kiln Rooms	1.0
b. Molding, Pressing, Cleaning and Trimming	1.5
c. Enameling	1.5
d. Color and Glazing	2.5
10. Cloth Products—Cutting, Inspecting, Sewing—	
a. Light Goods	2.5
b. Dark Goods*	1.5
Pressing, Cloth Treating (Oil cloth, etc.)	2.0
c. Light Goods	4.0
d. Dark Goods	4.0
11. Coal Breaking and Washing, Screening	1.0

Watts per
Sq. Ft.

12. Construction, Indoor General	1.0
13. Dairy Products	1.5
14. Electric Manufacturing—	
a. Storage Battery, Molding of Grids, Charging Room	1.5
b. Coil and Armature Winding, Mica Working, Insulating Processes	4.0
15. Engraving*	2.0
16. Forge Shops and Welding	1.5
17. Foundries—	
a. Charging Floor, Tumbling, Cleaning, Pouring and Shaking out	1.5
b. Rough Molding and Core Making	1.5
c. Fine Molding and Core Making	2.5
18. Garages—Automobiles, Storage—	
a. Dead .....	.5
b. Live	1.0
c. Repair Dept. and Washing	2.5
19. Glass Works—	
a. Mix and Furnace Rooms, Pressing and Lehr Glass Blowing Machines	1.5
b. Grinding, Cutting Glass to Size, Silvering	2.0
c. Fine Grinding, Polishing, Beveling, Inspection, Etching and Decorating	3.0
20. Glove Manufacturing—	
Light Goods—	
a. Cutting, Pressing, Knitting	2.0
b. Sorting, Stitching, Trimming and Inspecting	3.0
Dark Goods—	
c. Cutting, Pressing, Knitting	3.0
d. Sorting, Stitching, Trimming and Inspecting*	1.5
21. Hat Manufacturing—	
Dyeing, Stiffening, Braiding, Cleaning and Refining—	
a. Light	2.0
b. Dark	3.0
Forming, Sizing, Pouncing, Flanging, Finishing, Ironing—	
c. Light	2.0
d. Dark	3.0
Sewing—	
e. Light	2.5
f. Dark*	1.5
22. Ice Making—	
Engine and Compressor Room	2.0
23. Inspecting—	
a. Rough	2.0
b. Medium	2.5
c. Fine	5.0
d. Extra Fine*	2.0

* Local lighting is usually required. The watts per square foot values specified are intended to provide only for the general illumination needed when local lighting is used, and additional wattage must be allowed for such local lighting.



	Watts per Sq. Ft.		Watts per Sq. Ft.
24. Jewelry and Watch Manufacturing*	2.0	45. Sheet Metal Works—	
25. Laundries	1.5	a. Miscellaneous Machines, Ordinary Bench Work	2.0
26. Dry Cleaning	2.5	b. Punches, Presses, Shears, Stamps, Welders, Spinning	2.5
27. Leather Manufacturing—		c. Tin Plate Inspection*	1.5
a. Vats	1.0	46. Shoe Manufacturing—	
b. Cleaning, Tanning and Stretching	1.0	a. Hand Turning, Miscellaneous Bench and Machine Work	2.0
c. Cutting, Fleshing and Stuffing	1.5	b. Inspecting and Sorting Raw Material, Cutting, Lasting	2.5
d. Finishing and Scarfing	2.5	c. Inspecting and Sorting Raw Material Cutting, Stitching	1.5
28. Leather Working—		(dark)*	
Pressing, Winding and Glazing—		47. Soap Manufacturing—	
a. Light	2.0	a. Kettle Houses, Cutting, Soap Chip and Powder	1.0
b. Dark	2.5	b. Stamping, Wrapping and Packing, Filling and Packing	1.5
Grading, Matching, Cutting, Scarfing, Sewing—		48. Steel and Iron Mills, Bar, Sheet and Wire Products—	
c. Light	3.0	a. Soaking Pits and Reheating Furnaces	1.0
d. Dark*	2.0	b. Charging and Casting Floors	1.0
29. Locker Rooms	1.0	c. Muck and Heavy Rolling, Shearing, rough by gauge,	1.0
30. Machine Shops—		Pickling and Cleaning	3.0
a. Rough Bench and Machine Work	1.5	d. Plate Inspection, Chipping	1.0
b. Medium Bench and Machine Work, Ordinary Automatic		e. Automatic Machines, Rod, Light and Cold Rolling, Wire	1.0
Machines, Rough Grinding, Medium Buffing and		Drawing, Shearing, fine by line	1.5
Polishing	2.5	49. Stone Crushing and Screening—	
c. Fine Bench and Machine Work, Fine Automatic		a. Belt Conveyor Tubes, Main Line Shafting Spaces,	1.0
Machines, Medium Grinding, Fine Buffing and Pol-		Chute Rooms, Inside of Bins	1.0
ishing	4.0	b. Primary Breaker Rooms, Auxiliary Breakers, Under Bins	1.0
d. Extra Fine Bench and Machine Work, Grinding (Fine		c. Screen Rooms	1.0
Work)*	2.0	50. Store and Stock Rooms—	
31. Meat Packing—		a. Rough bulky material	1.0
a. Slaughtering	1.0	b. Medium or fine material requiring care	1.0
b. Cleaning, Cutting, Cooking, Grinding, Canning, Pack-		51. Structural Steel Fabrication	1.0
ing	2.0	52. Sugar Grading	1.0
32. Milling—Grain Foods—		53. Testing—	
a. Cleaning, Grinding and Rolling	1.5	a. Rough	1.0
b. Baking or Roasting	2.0	b. Fine	2.5
c. Flour Grading	4.0	c. Extra Fine Instruments, Scales, etc.*	2.0
33. Offices—		54. Textile Mills—	
Private and General—		(Cotton)—	
a. Close Work	4.0	a. Opening and Lapping, Carding, Drawing-Frame, Rov-	1.5
b. No Close Work	2.5	b. Spooling, Spinning, Drawing-in, Warping, Weaving,	2.0
c. Drafting Room	7.0	Quilling Inspecting, Knitting, Slashing (over beam	
34. Packing—		end)	2.0
a. Crating	1.0	(Silk)—	
b. Boxing	1.5	a. Winding, Throwing, Dyeing	2.0
35. Paint Manufacturing	1.5	b. Quilling, Warping, Weaving and Finishing—	
36. Paint Shops—		c. Light Goods	2.0
a. Dipping, Spraying, Firing	1.5	c. Dark Goods (Woolen)—	2.5
b. Rubbing, Ordinary Hand Painting and Finishing	2.0	a. Carding, Picking, Washing, Combing	1.0
c. Fine Hand Painting and Finishing	2.5	b. Twisting and Dyeing	1.5
d. Extra Fine Hand Painting and Finishing	1.5	c. Light Goods	1.5
(Automobile Bodies, Piano Cases, etc.)*		d. Dark Goods	2.0
37. Paper Box Manufacturing—		Weaving—	
a. Light	2.0	a. Light Goods	1.5
b. Dark	2.0	b. Dark Goods	2.5
c. Storage of Stock	1.0	c. Knitting Machines	2.0
38. Paper Manufacturing—		55. Tobacco Products—	
a. Beaters, Machine, Grinding	1.0	a. Drying, Stripping, General	1.0
b. Calendering	1.5	b. Grading and Sorting	4.0
c. Finishing, Cutting and Trimming	2.0	56. Toilet and Wash Rooms	1.5
39. Plating	1.5	57. Upholstering—	
40. Polishing and Burnishing	2.0	Automobile, Coach and Furniture	2.5
41. Power Plants, Engine Rooms, Boilers—		58. Warehouse	1.0
a. Boilers, Coal and Ash Handling, Storage Battery Rooms	1.0	59. Woodworking—	
b. Auxiliary Equipment, Oil Switches and Transformers	1.5	a. Rough Sawing and Bench Work	1.5
c. Switchboard, Engines, Generators, Blowers, Compressors	1.5	b. Sizing, Planing, Rough Sanding, Medium Machine and	
42. Printing Industries—		Bench Work, Gluing, Veneering, Cooperage	2.0
a. Matrixing and Casting, Miscellaneous Machines, Presses	1.5	c. Fine Bench and Machine Working, Fine Sanding and	
b. Proof Reading, Lithographing, Electrotyping	3.0	Finish	2.0
c. Linotype, Monotype, Typesetting, Imposing Stone, En-			
graving*	1.5		
43. Receiving and Shipping	1.0		
44. Rubber Manufacturing and Products—			
a. Calenders, Compounding Mills, Fabric Preparation,			
Stock Cutting, Tubing Machines, Solid Tire Opera-			
tions, Mechanical Goods Building, Vulcanizing	1.5		
b. Bead Building, Pneumatic Tire Building and Finishing			
Inner Tube Operation, Mechanical Goods, Trimming,			
Treading	2.0		

* Local lighting is usually required. The watts per square foot values specified are intended to provide only for the general illumination needed when local lighting is used, and additional wattage must be allowed for such local lighting.



Commercial Interiors

	Watts per Sq. Ft.
60. Armories— a. Drill Sheds	1.5
b. Exhibition Halls	2.0
61. Art Galleries— a. General	1.0
b. On Paintings (local)	
62. Auditoriums*— a. Small Auditoriums	1.0
63. Automobile Shows Rooms.....	4.0
64. Bank— a. Lobby	2.5
b. Cages and Offices	5.0
65. Barber Shop	4.0
66. Baseball—Indoor Game	2.5
67. Basketball	2.0
68. Bowling— a. On Alley Runway and Seats	1.5
b. On Pine (total)	
69. Billiards— a. General	1.5
b. On Table (local)	
70. Churches— a. Auditorium*	
b. Sunday School Room*	2.0
71. Club Rooms— a. Lounge	1.5
b. Reading Room	4.0
72. Court Rooms	2.5
73. Dance Halls*	1.5
74. Dental Offices— a. Waiting Room	3.0
b. Operating Office (general illumination)	5.0
c. Dental Chair (local)	
75. Depot—Waiting Room*	1.5
76. Drafting Room	7.0
77. Fire Engine House— a. When alarm is turned in	1.5
b. At other times .....	.5
78. Gymsnasiums— a. Main Exercising Floor	1.5
b. Swimming Pool	1.5
c. Shower Rooms	1.5
d. Locker Rooms	1.0
e. Fencing, Boxing, Wrestling	2.0
79. Halls, Passageways in Interiors	1.0
80. Handball	4.0
81. Hospitals— a. Lobby and Reception Room	2.5
b. Corridors	1.0
c. Wards (with local illumination)	1.0
d. Private Rooms	2.5
e. Operating Room (general illumination)	3.0
f. Laboratories	2.5
82. Hotels— a. Lobby	2.0
b. Dining Room*	2.0
c. Kitchen	2.0
d. Bedrooms	3.0
e. Corridors	1.0
f. Writing Room	4.0

	Watts per Sq. Ft.
83. Library— a. Reading Rooms	3.0
b. Stack Room	
84. Lodge Rooms*	1.5
85. Lunch Room	2.5
86. Market	2.0
87. Moving Picture Theatre*—	
88. Museum— a. General	2.0
b. Special Exhibits (local)	
89. Office Buildings— Private and General Offices— a. Close work	5.0
b. No close work	2.5
c. File Room	1.5
d. Vault	1.5
e. Reception Room	2.0
90. Post Offices— a. Lobby	2.5
b. Sorting, Mailing, etc.	3.0
c. Storage	1.5
d. Private and General Offices.	4.0
e. File Room and Vault.	1.5
f. Corridors and Stairways.	1.0
91. Railway— a. Depot—Waiting Room*	1.5
b. Ticket Offices	3.0
c. Rest Room, Smoking Room	1.5
d. Baggage Checking Office	3.0
e. Storage	1.0
f. Concourse*	1.0
g. Train Platform	
92. Restaurants	2.0
93. Racquets	4.0
94. Schools— a. Auditorium*	2.0
b. Class Rooms, Library and Office	3.0
c. Corridors and Stairways	1.5
d. Drawing	7.0
e. Laboratories	2.0
f. Manual Training	2.0
g. Sewing Room	7.0
h. Study Rooms—Desks and Blackboards	3.0
95. Skating Rink (Indoor).	1.0
96. Squash	4.0
97. Stores—Department and Large Specialty— a. Main Floors	3.0
b. Other Floors	2.0
c. Basement Store	2.5
98. Stores—Medium Size**	2.5
99. Telephone Exchange— a. Operating Rooms	1.5
b. Terminal Rooms	2.5
c. Cable Vaults	1.5
100. Theatres— a. Auditorium*	
b. Foyer	3.0
c. Lobby	3.0
101. Toilet and Washrooms	1.5

* Auditoriums and Other Large Spaces.

Such rooms must be considered in two general classes:
(1) Rooms of small or medium size and simple architectural treatment, where it may reasonably be presumed that semi-indirect or enclosing-bowl lighting equipment will be used. The watts per square foot values specified apply only to this class of auditoriums.

(2) Large rooms with relatively elaborate architectural treatment. This class may include large auditoriums, ball rooms, church auditoriums, railway station waiting rooms and concourses, theatres, and other similar spaces. On account of the wide variations possible in the type of lighting equipment employed, no watts per square foot values are specified for rooms of this class. The lighting system should be designed first and the wiring system should then be designed to supply the load thus predetermined.

** In small stores in high class shopping districts, 2.5 watts per square foot may not be adequate. An actual load of 4 to 6 watts per square foot is not uncommon in such stores.

A. E. I.

CHAPTER DIRECTORY



LOCATION	CHAPTER NAME	PRESIDENT	SECRETARY
ALABAMA Birmingham	Jefferson County.....	A. P. Bagby, 3115-3rd Ave., So..	D. B. Clayton, 1707 Am. Tr. Bldg.
CALIFORNIA Los Angeles	Calif. Electragists, Sou.	G. E. Arbogast, 726 S. Olive St....	F. J. Connolly, Ex. Sec., 609 Coton Exchange Bldg.
San Francisco.....	Calif. Electragists, Nor.	W. D. Vance, 10th and Oak Sts... Oakland	E. E. Browne, Mgr., 522 Call Bldg.
COLORADO Denver	Denver	J. R. Collier, 1898 S. Broadway...	G. A. Graveline, 919 E. Alameda Ave.
CONNECTICUT Greenwich	Greenwich	S. L. Blunt, Box 106, Sound Beach.	A. E. Wilson, 45 E. Putnam Ave.
New London.....	New London.....	B. F. Bruce, 120 Bank St.....	H. A. Newbury, 19 Union St.
Stamford	Stamford	H. H. Meisel, 44 Canal St.....	C. D. Greene, c/o Cable & Richdale, Darien.
FLORIDA Fort Pierce	St. Lucie.....	Thurman Wilson, 125 N. 14th St.	F. L. Brown, Cocoa, Fla.
Miami	Greater Miami.....	V. L. Turner, 142 N. E. 12th St..	H. W. Ferguson, 37 N. E. 1st Ave.
Orlando	Central Florida	J. J. Newell, 23 S. Main St.....	T. J. Craven, 13 S. Court St.
Tampa	Tampa District.....	R. C. Bigby, 305 Franklin St.....	P. F. Lyons, 1503 Grand Central Ave.
West Palm Beach..	Palm Beach County..	A. Hamilton, Jr., 606 Avon Rd...	W. E. Tunnicliff, Box A-41.
GEORGIA Atlanta	Atlanta	T. H. Fulton, 135 Peachtree Arcade.	R. C. Philips, 151 Nassau St., N. W.
ILLINOIS Chicago	Chicago (Cook Co.).	Wm. McGuineas, 110 S. Dearborn St.	J. W. Collins, 228 N. LaSalle St.
Chicago	Chicago Motor Specialists	S. A. Hohman, 1420 Garfield Ave.	Arthur Wagner, 701 Washington Blvd.
INDIANA Hammond, Gary...	Lake-Porter	L. J. Granger, 140 Plummer Ave..	A. R. Irwin, 1267 Kennedy Ave.
IOWA Burlington	Burlington	M. J. Frazier, 1117 South St.....	Leo Pohren, 219 Marshall St.
Cedar Rapids.....	Cedar Rapids.....	James E. Cusak, 322-3rd Ave.....	C. E. Stone, 115-2nd Ave.
Davenport	Quad-Cities	Wm. McNeeley, Elec. Constr. & Mch'y. Co., Rock Island, Ill....	Edw. Reavey, 810-15th Ave., East Moline, Ill.
Des Moines.....	Des Moines.....	C. F. Fountain, 709½ Grand Ave.	F. J. Moeckley, Mgr., 311 S. 8 L. Bldg.
Dubuque	Dubuque	C. H. Keller, 1135 Main St.....	C. M. Smith, 414 Main St.
Mason City.....	Mason City.....	C. J. Smith, 319 N. Federal Ave..	R. B. Determan, 806 N. Adams Ave.
Ottumwa	Ottumwa	M. W. Poling, 218 E. Main St....	C. F. Alline, 228 E. 2nd St.
Sioux City.....	Sioux City.....	E. A. Croll, 423 Pearl St.....	H. J. Ryan, 405 Douglas St.
KENTUCKY Louisville	Louisville	S. B. Storm, 104 E. Market St....	
LOUISIANA New Orleans.....	New Orleans.....	M. E. Hart, 826 Baronne St.....	I. G. Marks, 323 Chartres St.

MARYLAND			
Baltimore	Baltimore	A.C. Brueckmann, 314 Keyser Bldg.	G. R. Tabb, Asst. Mgr., 410 Continental Bldg.
MICHIGAN			
Detroit	Detroit	H. B. Fife, 1446 Gratiot Ave.....	C. C. Cadwallader, 2111 Woodward Ave.
Flint	Flint	P. F. Schagane, 710 S. Saginaw St.	E. E. Allen, 127 E. 1st St.
MINNESOTA			
Duluth	Duluth and N. E. Minnesota	W. S. Johnson, 103 W. 1st St... F. M. Tripp, 3857 Garfield Ave... J. O. Nelson, 474 Rosabel St.....	R. H. Holmes, 32 W. Superior St. Earl Williams, 2324 Central Ave. H. C. Bentz, 76 W. 3rd St.
Minneapolis	Minneapolis		
St. Paul.....	St. Paul.....		
MISSOURI			
Kansas City.....	Greater Kansas City..	H. C. Evans, 1626 Walnut St....	J. F. Costelow, 2757 Holmes St.
St. Louis.....	St. Louis.....	W. C. Burton, 904 Pine St.....	C. H. Christine, Sec.-Mgr., 1504 Ambassador Bldg.
NEBRASKA			
Omaha	Omaha	E. J. Grafentin, 2415 Farnam St..	E. H. Brown, 736 Electric Bldg.
NEW YORK			
Buffalo	Buffalo	Karr Parker, 75 W. Mohawk St... J. W. Hooley, 420 Lexington Ave.	D. L. Volker, 951 Gerrans Bldg. Walter Knapp, 207 E. 43rd St.
New York City....	New York (No. 1)		
New York City....	New York Motor Specialists	W. J. Wheeler, 449 W. 42nd St.. G. F. Laube, 338 Main St., E.... L. R. Rogers, 13 Jay St.....	E. Vanderlinde, 52 Charlotte St. Richard Spengler, 421 McClellan St.
Rochester	Rochester		
Schenectady	Schenectady		
OHIO			
Akron	Akron	H. T. Uhl, 76 Bowery St.....	G. L. Sanderson, 640 N. Main St.
Cincinnati	Cincinnati	C. S. Zink, 3041 Madison Rd....	T. J. Donnelly, 3724 Westgate Ave.
Columbus	Columbus	E. E. Evans, 1390 E. Main St....	O. C. Jordan, 70 E. Spring St.
Toledo	Toledo	A. E. DeFrance, 2320 Rosew'd Ave.	C. F. Hammer, Ex. Mgr., 314 Richardson Bldg.
Youngstown	Mahoning-Trumbull ..	J. B. Conklin, 10 State St., Struthers.	E. C. Ramm, Sec.-Mgr., 2222 Market St.
OREGON			
Portland	Portland	A. R. Johnson, 106-4th St.....	J. R. Tomlinson, 219 Weatherly Bldg.
PENNSYLVANIA			
Erie	Erie	Herbert Garvin, 113 W. 7th St... J. E. Hess, 23 E. Orange St.... J. C. Wolf, 2117 Alter St.... W. F. Weberg, 309 Blvd. of Allies.	P. M. Geary, Sec.-Mgr., 418 Commerce Bldg.
Lancaster	Lancaster County		
Philadelphia	Philadelphia		
Pittsburgh	Pittsburgh		
Scranton, Wilkes-Barre	Lackawanna-Wyoming Valley	H. F. Hartman, 500 Lackawanna Ave., Scranton	G. E. Shepherd, Sec.-Mgr., 1002 Brooks Bldg., Wilkes-Barre.
TENNESSEE			
Chattanooga	Chattanooga	L. E. Lawson, 103 W. Frazier Ave	P. W. Curtis, 104 E. 6th St.
Memphis	Memphis	L. H. Lanahan, 317 Butler Ave...	W. W. Rice, Mgr., 918 Dermon Bldg.
TEXAS			
Amarillo	Amarillo	G. E. Broome, 515 Tyler St.....	J. C. Honea, 115 W. 7th St.
Austin	Travis County	J. O. Andrewartha, 105 E. 9th St..	C. C. Linscomb, 915 Congress Ave.
Dallas	Dallas	W. M. Clover, 507 S. Akard St..	C. J. Roesch, 3224 Knox St.
El Paso	El Paso	C. C. Dunn, 1614 E. Missouri St.	Art Wilke, 301 W. San Antonio St.
Fort Worth.....	Fort Worth.....	J. L. Goolsby, 1022 Monroe St..	Herman Brown, 202 E. 11th St.
Houston	Houston	A. T. Cooke, 2102 Esperson Bldg.	W. H. Kirk, Kirby Bldg.
Lubbock	Lubbock	R. L. Fletcher, 1214½ Texas Ave.	Claude Wilson, 1301-19th St.
Plainview	Plainview	J. H. Burt, 713 Austin St.....	C. D. Powell, 205 E. 6th St.
San Antonio.....	San Antonio.....	W. M. Graham, 801 Main Ave...	F. H. Schroeder, 915 Real Estate Bldg.
Waco	Waco	Claude Doyle, 704 Austin Ave...	G. H. Lane, 1020 Austin Ave.
Wichita Falls.....	Wichita Falls.....	J. H. Oechsner, 809 Brook St.....	H. F. Sprinkles, 808-7th St.
UTAH			
Salt Lake City.....	Northern Utah	R. R. Reid, 35 Post Office Pl.....	R. W. Dawes, Ex. Sec., 323 Felt Bldg.
WISCONSIN			
Appleton	Fox River Valley.....	E. A. Killoren, 116 S. Superior St.	A. A. Schneider, 231 E. College Ave.
Fond du Lac.....	Fond du Lac.....	A. A. Kaufman, 48 N. Main St..	C. L. Kreuger, 107 N. Main St.
Kenosha	Kenosha	Henry Herrema, 2311-63rd St....	D. G. Speaker, 4726-7th Ave.
Milwaukee	Milwaukee	R. R. Knoerr, 553 Milwaukee St..	E. H. Herzberg, Bus. Mgr., 1604 Wells St.
Racine	Racine	J. J. Small, 1910 Linden Ave....	F. H. Patrick, 1545 West Blvd.
Watertown	Watertown	Arthur Ruesch, 310 N. Water St..	George Wilke, 132 Corner St.
CANADA			
Winnipeg	Manitoba	A. H. Polden, 52 Albert St.....	A. E. Godsmark, 611 Confederation Life Bldg.

UNAFFILIATED LOCALS

LOCATION	NAME OF ASSOCIATION	PRESIDENT	SECRETARY
ALABAMA Mobile	Mobile Electrical League.....	W. G. Baxter, 260 St. Francis St.	M. R. Wheeler, 15 N. Jackson St.
DIST. OF COL. Washington	Institute of Electrical Contractors of D. C.	R. W. McChesney, 1800 "E" St., N. W.	H. W. Kellams, Edmonds Bldg.
FLORIDA Jacksonville	Electrical Contractor-Dealer Associa- tion of Jacksonville.....	P. S. Kelly, 1512 Mallory St.	W. H. Secrest, 323 E. Union St.
ILLINOIS Chicago Heights.....	Electrical Contractor-Dealers Associa- tion of Illinois.....	C. W. Berger, 212 E. Jefferson St., Joliet, Ill.	Otto Pedersen, 5 Illinois St., Chicago Heights, Ill.
Decatur	Decatur Electrical Contractors Associa- tion	W. H. Jennings, 130 E. Eldorado St.	E. O. Weatherford, c/o Rex Electric Co.
Granite City	Tri-City Electrical Contractors Associa- tion	J. R. Kelahan, 1920 State St.	M. E. Kirkpatrick, Niedringhaus & State Sts.
Joliet	(Same as Chicago Heights)		
INDIANA. South Bend	Association of Electrical Engineers.....	W. J. Arnold, c/o Central Electric Co.	
Valparaiso	Porter County Electrical Contractors Association	Harold Bortels, Chesterton, Ind.	J. W. Van Ness, Valparaiso
IOWA Waterloo	Waterloo Electric Club.....	Karl Updegraph, 610 Riehl St.	
MASSACHUSETTS Cambridge	Cambridge Master Electricians Associa- tion	H. F. Berry, 8 Boylston St.	J. L. Winn, Jr., 550 Massachusetts Ave.
Everett	Electrical Association	I. S. Cowan, Melrose, Mass.	Harry Walton, Malden, Mass.
Malden	(Same as Everett)		
Medford	(Same as Everett)		
Melrose	(Same as Everett)		
Newton	Newton Electric Association.....	O. L. Hawes, 15 Main St., Watertown	C. L. Howe, Belmont Electric Light Co., Belmont
Springfield	Springfield Electrical Contractors Asso- ciation	Andrew Page, 18 Dwight St.	M. L. Schmitt, 198 Chestnut St.
Watertown	(Same as Newton)		
MICHIGAN Grand Rapids	Grand Rapids Electric Club.....	Lester Strain, 915 Leonard St.	H. A. Roseberry, 1454 Wilcox Park Drive (Same)
Lansing	Electrical Contractors of Lansing.....	W. H. Bohnet, 327 N. Washington	
MINNESOTA Duluth	Duluth Electrical Contractors Associa- tion	W. L. Johnson, 103 W. 1st St.	R. H. Holmes, 30 W. Superior St.
Minneapolis	Electrical Contractors Association of Minneapolis	Frank Hurd, 314 W. Lake St.	Charles Williams, Superior Electric Co.
	Minneapolis Electrical Contractors As- sociation	F. M. Tripp, 3857 Garfield Ave.	Frank Axell, St. Cloud, Minn.
St. Cloud	Central Minnesota Electrical Associa- tion	John Ellenbecker, St. Cloud, Minn.	H. C. Bentz, 76 West Third St.
St. Paul.....	Master Electrical Contractors Division of Electric League.....	J. O. Nelson, 474 Rosabel St.	
NEW JERSEY Bayonne	(See Jersey City)		
Jersey City	Master Electricians Association of Hud- son County	W. J. Coleman, 11 Oakland Ave.	John Laird, 38 Oakland Ave.
Newark	Electrical Contractors Association of Essex County.....	Fred Rosseter, 144 Washington St.	H. L. Flehman, 49 Lawrence St.
Paterson	Electrical Contractors Association of Passaic County, Inc.....	Charles White, 23 Park Ave.	J. W. Broadfoot, 306 E. 21st St.
NEW YORK Brooklyn	Brooklyn Electric Club.....	P. T. Griffen, 335 Adams St.	F. Ward, 335 Adams St.
Hempstead	Nassau-Suffolk Contractors Association.	C. D. Cottrell, Glen Cove, L. I.	F. W. Dodge, Great Neck, L. I.
Long Island	Long Island Master Electrical Contract- ors Association, Inc.....	Harold Story, 37-58 58th St., Woodside, L. I.	H. J. Hoffman, 104-29 109th St., Richmond Hill, L. I.
Mamaroneck	Westchester County Electrical Associa- tes, Inc.....	Chris Carl, Mount Vernon, N. Y.	John Farrell, New Rochelle, N. Y.

LOCATION	NAME OF ASSOCIATION	PRESIDENT	SECRETARY
Mount Vernon	(Same as Mamaroneck)		
New Rochelle.....	(Same as Mamaroneck)		
Newburgh	Electric League of Newburgh.....	H. A. Warden, 68 Broadway	J. G. Mezger, 99 Broadway
New York City.....	Associated Electrical Contractors of New York	A. L. Bush, 405 Lexington Ave.	C. G. Widman, 229 West 42nd St.
	Bronx Electrical Contractors Associa- tion, Inc.	Samuel Gettlemann, 929 E. 163rd St., Bronx	J. Edelmuth, 1046 Jackson Ave., Bronx
	Independent Associated Electrical Con- tractor-Dealers	J. J. Bauer, 157 E. 51st St.	G. W. Neil, 71 8th Ave.
	Staten Island Electrical Contractors Association	J. J. Keller, 1851 Clove Ave., Stapleton, Staten Island	R. M. Martin, 159 Rockland Ave., New Dorp, Staten Island
Niagara Falls.....	Electrical Contractors Association.....	Alex Vair, 8438 Buffalo Ave.	E. M. King, 513 Niagara St.
Syracuse	Electrical Contractors Association of Syracuse	T. D. Holihan, 606 Eckel Theatre Bldg.	F. P. Edinger, 804 East Water St.
OHIO			
Canton	Electrical Contractors Association of Canton	L. P. Frantz, 721 Tuscarora St., W.	A. M. Gremminger, 829 Market Ave., N.
	Master Electricians, Inc.....	W. C. L. Hilscher, 137 6th St., N. E.	H. S. Hastings, New Vicary Bldg.
Cincinnati	Electrical Contractors Division, Cincin- nati Electric Club.....	Wm. Dimmitt, 203 W. McMillan St.	Fred Riehle, 1642 Cedar St., College Hill
PENNSYLVANIA			
Allentown	Lehigh Valley Electrical Association....	Edgar Brown, Hellertown, Pa.	A. W. Reinert, 139 N. 7th St., Allentown
Altoona	Altoona Electrical Contractors and Dealers Association.....	W. S. Neff, 1909 8th Ave.	C. W. Chathams, 1217 27th Ave.
East Stroudsburg.....	(Same as Allentown)		
Harrisburg	Harrisburg Electrical Contractors and Dealers Association.....	C. M. Davis, 600 N. 2nd St.	R. A. Snyder, 760 N. Front St., Steelton, Pa.
Norristown	Norristown Electrical Contractors As- sociation	W. J. Hogan, 234 E. Oak St.	E. L. Seabrook, 70 E. Main St.
York	Electrical Contractors and Dealers As- sociation of York County.....	H. B. Reisinger, 44 N. George St.	Ross McAfee, 123 E. Princess St.
RHODE ISLAND			
Providence	Master Electrical Contractors Associa- tion	Fred Bartlett, 124 Dorrance St.	F. A. Brown, 383 Benefit St.
TEXAS			
Weslaco	Master Electricians Association of Lower Rio Grande Valley.....	J. W. Martin, McAllen, Texas	David Wilson, Donna, Texas
VIRGINIA			
Richmond	Electrical Contractors Association of Richmond	W. H. Jenks, 308 E. Grace St.	E. M. Andrews, 15 N. 12th St.
WASHINGTON			
Seattle	Allied Master Electricians of Seattle.....	A. A. Cates, 3910 37th Ave., So.	J. E. Atkinson, 3116 13th Ave., So.
	Electrical Contractors Association.....	J. J. Agutter, 316 Seneca St.	
Tacoma	Tacoma Electrical Contractors and Dealers Association.....	C. M. Shank, 419 St. Helens Ave.	A. M. Gebbers, 740½ Broadway
WISCONSIN			
Superior	Electrical Contractors Association.....	A. Johnson, 3rd & Grand Ave.	R. W. Springer, 1225 Tower Ave.
CANADA			
Montreal, Que.....	Electrical Contractor-Dealers Associa- tion of Province of Quebec.....	A. Lamontagne, 1712 Montcalm St.	E. Benard, 6729 St. Denis St.
St. Catharines, Ont....	Niagara District Electrical Contractors Association	W. Mackenzie, c/o Sterling Electrical Co.	A. J. Desand, St. Paul St.
Saskatoon, Sask.....	Saskatoon Electrical Contractors Asso- ciation	D. F. Streb, 144 2nd Ave., N.	James Brandon, 212 2nd Ave., N.
Toronto, Ont.....	Toronto Electrical Contractors Asso- ciation	Gordon Alexander, 457 Church St.	George Gander, 1104 Bay St.
Vancouver, B. C....	Vancouver Association of Electragists..	C. H. E. Williams, 509 Richards St.	J. O. Reston, 579 Howe St.
	Vancouver Electrical Association.....	G. P. Farr, 542 Howe St.	S. F. Ricketts, 622 Howe St.

V. E. ANDERSON

*Itinerant Instructor of Electricity
Wisconsin State Board of Vocational Education*

Makes strong plea for National Program for Adequate

Apprentice Training

THE development of good mechanics results in more adequate wiring properly installed, yet efforts toward adequate apprentice training are being hindered through a lack of national requirements and promotion. It is of momentous importance that the industry sponsor without delay a national program of apprentice training.

The enactment of the federal Smith-Hughes law several years ago, provides federal aid through the state and federal boards of Vocational Education to certain trades and industries including the electrical. In order for any state to receive this aid, a law must be enacted agreeing to spend an equal amount. It is necessary to follow the program laid down by these boards to obtain this aid. This program includes first, fostering and promoting better electrical conditions; second, the development of the electrical apprentice, and third, the conducting of trade finding classes to pick out boys that are materially fit for apprenticeship.

The Wisconsin State Board of Vocational Education operates along this plan. In the working out of actual courses for specific trades in apprenticeship training, it has been found desirable to call upon representatives of the employers and employees in the particular occupation affected. Thus, there are, in many cities, advisory committees working with the state and local boards of vocational education, to develop practical and fundamental programs of vocational instruction.

One great difficulty which confronted the state and local boards of vocational education in the smaller cities, was to find a method of instruction for apprentices which would not be prohibitively expensive.



In cases where one or a few pupils only are involved, it has usually been the practice to employ a local specialist on a part-time basis to instruct the pupil each week in the school hours set aside for vocational instruction, following a program agreed upon with the part-time school.

In cases where there is a considerable number of pupils, but not enough to justify a full-time instructor, the itinerant teacher plan has been found to be very satisfactory. Itinerant instructors travel from town to town on a regular schedule.



The present Wisconsin program provides 400 hours of instruction over a 4 years period. 100 hours is devoted to instruction in drawing which is spread over the 4 years. The first year drawing exercises only are studied; the second year symbols, blue print reading, and layout drawings; and third and fourth years, advanced blueprint reading and circuit drawing.



Mathematics cover 100 hours of instruction. The first year, ohms law, voltage drop formulas and series and parallel circuits are studied. The second year figuring feeder sizes, and pricing of material. The third and fourth years advanced formulas of single and 3-phase circuits.

The day of the itinerant electrical instructor in each city is divided as follows: Forenoon, travel and field work; afternoon, apprentice and trade finding classes; evening, classes for electricians who are actually engaged in the business. He teaches only such trade finding classes as are essential to assist in the proper selectivity of apprentices, and as are commensurate with the actual needs of the trade.

Caution and discretion is used in placing in either day or evening trade extension classes any who are not definitely acceptable to the trade as being employed in that trade occupation. To do so creates not only an undesirable teaching situation but also produces a lack of confidence in the school on the part of the trade. Federal aid can, under the Federal Board for Vocational Education rulings, be given for selected groups only. The selected group is one of the best insurances for successful teaching results.

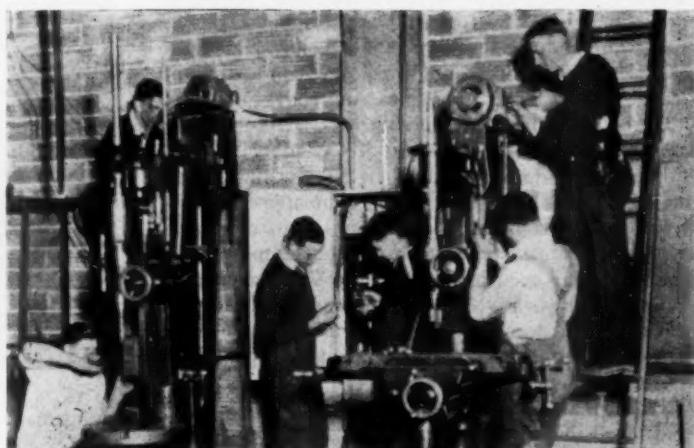


Related science is studied 100 hours. This includes a study of state and national Codes and the local ordinance.

It is also in line with the policy of the state board of vocational education with the use of federal funds to assist in maintaining this instructional work for the purpose of making *better* workers in the trade and not *more* workers.

The part-time school is not a trade school. The basic elements of the trade are learned on the job. The apprentice classes at the part-time school are specifically organized for those already engaged in the trade to supplement the practical knowledge thus gained by instruction based on trade experience.

General classes in trade finding groups are organized to help the younger pupils to choose wisely the occupations for which they are best fitted. These classes form a part of the program of every vocational school and should be taught by the resident teachers as part of the organized program of the school. Specific individuals or groups will as a result of the general trade finding process show a desire for becoming apprentices in a specific trade. This selected group may then be considered the problem of the itinerant instructor and be assigned to him for the purpose of discovering their aptitude and availability for apprenticeship in the electrical trade. It is not the work of the itinerant instructors to teach this selected group the trade or any



Shop work is given 100 hours. Problems that are confusing on the job are worked out and the apprentices are given a chance to do work that they don't have an opportunity to do on the job.

part thereof but only to discover whether they make good apprenticeship material. The function of the itinerant teacher with this selected group is largely that of a vocational counsellor to assist those, especially fitted for a particular trade, to secure employment in the trade as learners or apprentices.

After entering these occupations, they can then be enrolled in the apprenticeship classes and later in the evening trade extension classes.

The development of the apprentice is carried on with the aid of an advisory committee and the Industrial Commission. The advisory committee suggests what to teach the young apprentice while the Industrial Commission signs him up for the required time to serve as an apprentice. The boy is required to work four years at the trade and go to school one-half day each week with pay until he has put in four hundred hours. At the end of his apprenticeship he is given a journeyman diploma by the Industrial Commission, countersigned by his employer.

Difficulties

Despite these complete facilities for teaching, our present program for instructing electrical apprentices is temporary and will remain temporary so long as our local boards remain unassisted by a national program of instruction. Among the difficulties encountered are:

1. Lack of promotional interest from local school. This is probably due to a misconceived idea that apprentice training is of secondary consideration. The small classes meet only once a week and follow a program planned only by a local board, with insufficient trade data.
2. Lack of interest and cooperation from contractors. Due largely to doubt on the part of the contractors as to the ability of the local board to provide an adequate program of instruction and fear that boys will be taught to wire prior to the observance of the Code.
3. Laxity in helper attendance. Due to poor interest of contractors in helper's activities and assigning him work on school afternoons.
4. Lack of interest of helpers. This condition grows where contractors show no interest in the helper's training.

5. Competition by self-styled helpers. Without a definite program in force boys shop around from contractor to contractor until, with a smattering of electrical knowledge gained in a year or two, they call themselves journeymen. With little or no inspection they get by, undermining the industry with substandard installations and frequently going into business for themselves, with only a meager trade knowledge.

These problems are the ones most frequently encountered in apprentice instruction. Of course, they are not predominant or our apprentice training efforts would be a failure. However, they present a handicap under which apprentice instructors must work.

A national program, sponsored by the Association of Electragists, Int., would do much to improve the situation. Of course, various local conditions would prevent the working of a national program in every detail, but such a program would give local organizations and boards a basis on which to work.

Suggestions

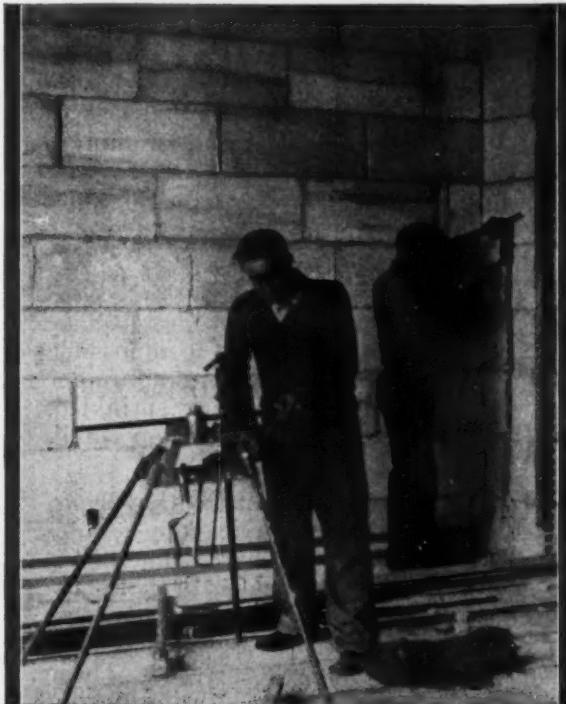
1. *The Association of Electragists appoint an educational committee to develop a national program of instruction to be carried on in conjunction with 4 years of work as an apprentice.*

2. *That in the development of this program the committee work with representatives of labor, engaged in electrical work. The working out of the program, however, should not be left entirely with labor but rather labor should be an aid in its development.*

3. *Perhaps state advisory committees of masters and journeymen should be appointed to work with the state Boards in the application of the program in conjunction with state educational facilities, look after legislation pertaining to education, and also act as an advisory board to local committees.*

4. *Local advisory committees appointed by chapters to work out the problems of each community and obtain the cooperation of local contractors and labor.*

5. *Care should be taken in developing such a program that it provide not only for apprentice instruction but that it provide means of eliminating 110-volt instruction in high schools where boys usually learn enough to wire lighting circuits with bell wire.*



The part-time school is not a trade school. The 400 hours of instruction supplement the basic elements of the trade which are learned on the job under the instruction of a competent journeyman or contractor.

Electrical Contracting

With Which Is Incorporated The Electragist

S. B. WILLIAMS
Editor

Wiring Adequacy

ONCE a year at the time of the annual Electragist Convention we publish an issue of special appeal—an issue, the preparation of which extends over the better part of a year—an issue which is created to have a more or less permanent value.

This issue is our 1930 Electragist Convention Issue—its theme is "Wiring Adequacy".

Much has been written about wiring adequacy but no real study has been made since the Home Lighting Contest five years ago.

What is adequacy and how can it be secured? We know how much light is enough, and power demands are very definite. These requirements, however, are generally translated into types and size of illuminants in the case of light, or motors in the case of power.

The first and most important step, however, has up to recently been ignored—copper.

In many a city this summer people with an adequate number of water taps, basins, tubs, showers, etc., have found it impossible to get adequate water service around dinner time when the lawns were being sprinkled. Why? Because the mains were too small.

THIS same trouble exists with wiring. Unless there is adequate copper, adequate service cannot be had. Therefore, ELECTRICAL CONTRACTING takes pride in presenting to the electrical industry in this issue on pages 21, 22, 23, 24 the first suggested Standards for Circuit Wiring. These values will permit adequate lighting during the reasonable useful life of a building.

In this issue we present also the first nation-wide survey on Range Wiring. Be-

cause the cost of wiring was apparently holding back the development of the range market, ELECTRICAL CONTRACTING made a nation-wide survey of costs and methods.

Most buildings are inspected when built and never again. Amateurs, the elements, age, wear and tear—all have a hand in reducing the safety of the wiring. We believe that reinspection is essential in this country. We furthermore believe that it will make faster progress only when the contractors insist upon it. ELECTRICAL CONTRACTING has made a study of reinspection in more than one hundred cities. The first installment of the results disclosed by that study appears in this issue and show a tremendous potential market for contractors.

A DEQUACY in wiring, however, is not altogether a question of materials, it is frequently workmanship. For that reason we discuss the future of the apprenticeship movement.

Too often in talking of adequacy we think only of increasing the customer's light bill. To our mind adequacy means not only enough, but easy to use. For that reason too much emphasis cannot be laid on switching.

To sell adequacy one must know adequacy from the buyer's point of view. In other words, what does the buyer want? When this is known, sell him his own idea showing him how to do it with wiring.

These are some of the high spots of this 1930 Convention number of ELECTRICAL CONTRACTING.

The editors present it to the industry in the hopes that it may give momentum to the cause of wiring adequacy, better service to the public and make more money for the industry.

To the Members of the A. E. I.

THIS month at Milwaukee you will hold your Thirtieth Annual Convention, thus marking the close of another year of association effort.

What have you accomplished? What is the value of your association to you or to the industry? Are you keeping up with the parade? What are your potentialities?

These questions are answered very fully for those who will study the A. E. I. Exhibit on pages 115, 116, 117 and 118 of this issue.

In more than seventy cities there are now active Electragist Chapters making it possible for the first time for virtually the entire membership to get behind any constructive movement to insure local acceptance.

The exhibit shows the association to be engaged in a thousand and one important activities involving the contractor's interests, every one of them important.

To those members who want and need help, and let the headquarters know their needs, the association has been exceedingly useful. The wide variety of help given to individual members should be a revelation to those members who are always grumbling that the association does nothing for them.

The A. E. I. Exhibit is an annual feature of the Electragist Convention Issue of ELECTRICAL CONTRACTING. It shows more clearly than any amount of talking that the Association of Electragists is accomplishing a tremendous amount of good for its members, for electrical contractors as a whole and for the entire industry.

The White Pipe Standard

FOR the past five or six years the Association of Electragists has been campaigning for a single standard of conduits and fittings, preferably galvanized. It now begins to look as though this campaign, with a little local effort, would be successful.

The manufacturers of conduit, while for the most part sympathetic towards this movement, cannot, for legal reasons, agree to make only one type because there are one or two manufacturers making only black pipe.

On the other hand the market for white

pipe is becoming more pronounced all the time. The relation of sales of the two types for the past three years are as follows:

	Percentage of total conduit sales	
	Black	White
1928	48%	52%
1929	44%	56%
1930 (1st 4 mos.)	38%	62%

A few more ordinances requiring that all conduit and fittings should be galvanized would help the movement tremendously.

Rewiring Workmanship

WE were asked the other day if an electrical contractor had to be mussy when putting in additional wiring.

As a matter of fact, a mussy contractor will probably lose money doing rewiring. The mere fact that he is mussy shows he does not know his job. Unless a contractor is very familiar with old house construction, he will pretty well tear the walls to pieces.

A contractor who specializes on rewiring will be found to be clean and neat. He will do the work quickly and it will be difficult to see where he has been working after he is through. He is the one who gets all his work on the recommendation of satisfied customers.

Electrical Homes?

A FEW years ago every city of any importance featured "electrical homes." The fad died out, but now seems to be coming to life again.

There is no doubt but what these so-called electrical homes draw crowds—but do the crowds come to see the electrical work or lighting fixtures? One home off the beaten path had 43,000 visitors. Did they wade through mud to find out how many outlets the house had?

The electrical home has a wonderful publicity value which must be kept for the electrical industry. There should be no slighting of the hangings or furniture for they, after all, are what the public come to see. All we suggest is that before a community puts on an "electrical home" it give full consideration to this fact and make sure that the electrical industry cashes in on its effort.

Code Chats

A Monthly Discussion of Wiring Practice and Questions of Interpretation, Presented with a View Toward Encouraging a Better Understanding of the National Electrical Code - - - - -

Conducted by F. N. M. SQUIRES

Assistant Chief Inspector, N. Y. Board of Fire Underwriters

Electrical Metallic Tubing

A little confusion has arisen among some over the wording of Rule 508-I because of the grouping of the words "exposed dry location" in the restrictions placed on the installation of electrical metallic tubing.

There was considerable discussion over what restrictions should be placed on the installation of this tubing and the final decision was that, at least for the present and until more was known about the service ability of this tubing, its use in concealed locations was not to be permitted. It was, therefore, ruled that electrical metallic tubing could be used only in exposed dry locations.

If we slip the word "and" in between the words "exposed" and "dry" we have the meaning expressed a little more clearly. Then we have the rule reading that the tubing is to be used only in exposed and dry locations.

* * *

Armored Cable in Stables

A correspondent writes that the question has arisen several times as to whether or not the requirement for the use of lead sheathed armored cable (A. C. L., commonly called B. X. L.) in stables was purposely omitted from the two last editions of the Code.

The attempt to classify any particular occupancy as wet, moist, or damp was purposely abandoned as it was realized that all stables were not necessarily damp. It was felt that it would be better to hinge the use of lead upon the fact of dampness rather than whether a structure was called a stable, or a barn, or a shed.

Under the 1925 Code a building of interest then to know that the matter of gutters is taken care of which was perfectly dry and never damp would require type A. C. L. if it was called a stable but would not if called by some other name. The very stable which brought about this change in the Code had a violation lodged against it for use of ordinary armored cable, but today, after several years standing, exposed, unpainted iron in this stable does not show any effects of rust.

* * *

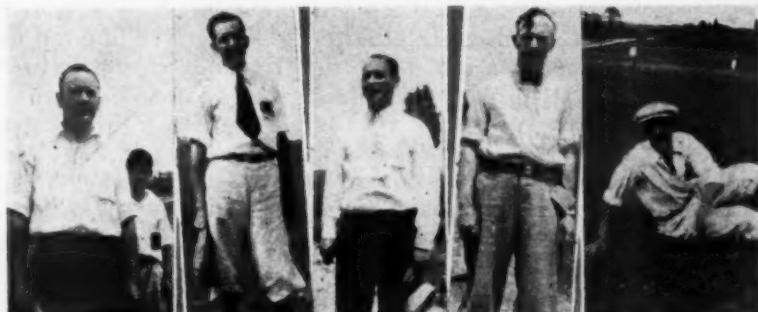
Guttered Panel Boxes

It is very generally known that Rule 702 (g), requires gutters in cutout and panel boxes containing the wires of more than four circuits. It may appear to some, on removing the trim of some of the enclosed branch circuit cutouts, that no gutter has been provided though the device is labeled as approved. It will be

Armored Cord for Window Signs

The abuse of flexible cord has been a thorn in the side of most inspection departments for a long time. It is an evil that is hard to combat. And now we have added to our hardships the small gas tube (neon) window sign.

Rule 614-c is clear and says that armored flexible cord shall be used



SOME CONTRACTORS AT THE WASHINGTON LEAGUE OUTING: Left to right, Richard A. Murphy, Bancroft T. Foley, Henry J. Door, Jere D. Mackessy and Joseph T. Kirchner, all members of the contractors' ball team who won on a score of 8 to 7 from the wholesaler-manufacturers' team at the annual outing of the Electric League of Washington, D. C. Another feature of the day was a ball game between the sons of the contractors and the sons of jobbers and manufacturers. Dick Murphy was father of most of the junior contractors' team. About 500 people attended the outing, journeying to the resort in a caravan of 200 autos under police escort and headed by a brass band and followed by an emergency service truck to give first aid to any falling by the wayside.



The STERICK Building, Memphis, Tenn.

Owners—R. S. Sterling, Houston, and Wyatt C. Hedrick, Fort Worth.
Architect and Engineer—Wyatt C. Hedrick, Inc., Fort Worth.
General Contractor—Bellows-Macay Construction Co., Dallas.
Electrical Contractor—Asha Electric Co., Fort Worth.

Tennessee's Tallest, Newest and Finest Office Building in Memphis

The
STERICK
Building

Equipped Throughout With

TRICO Renewable FUSES

They're "Powder-Packed"



Approved by
Underwriters

When fuses were considered, TRICO Colortop Plug and Renewable Fuses were selected because they fit in with the high ideals and magnificence of this imposing 29-story structure.

Money-Saving Factors
No Premature Blowings
No Unnecessary Shutdowns
No Oxidized Contacts
No Charred Casings
Copper-to-Copper Contacts
Reduced Watt Loss
Time Lag

To secure these money-saving factors the TRICO renewal element is designed with the thought of performance in mind, rather than interchangeability of links; and the practical buyer prefers performance.

And they cost no more than other makes of renewable fuses.

New!
Another Outstanding
TRICO Product



KLIPLOK
MADE IN U.S.A.

CLAMPS FOR FUSE CLIPS

"Locks Like a Vise"
Makes Pressure Contact between fuse and clips. Reduces resistance—and preserves clips and fuses.
Made in sizes to fit all clips.

TRICO FUSE MFG. CO., 1007 McKinley Ave., Milwaukee, Wis.

TRICO
REG. U. S. PAT. OFF.

RENEWABLE FUSES—PLUG FUSES—NON-RENEWABLE FUSES—FUSE PULLERS

TEAR OFF This Corner and Mail To

R. M. Swisher Co., Sales Agents
Nischan Products, Inc.
507 Lloyd Building,
Hammond, Ind.

Gentlemen: Send me at once, Set No. 1 NISCHAN Knockout Punches. After 10 days' trial, if I am not satisfied I will return them to you. I understand this obligates me in no way!

Name.....
Address.....
City..... State.....(3)

**FOR
10 DAYS
FREE
TRIAL**

**OF THE NEW
NISCHAN
KNOCKOUT
PUNCH**

To Prove These Features Are Time
and Money Savers!

Features

- 1 Speed—is equipped with four cutters!
- 2 Ease of operation—Has roller bearings!
- 3 Sturdy and Durable—Cutters are Tool Steel.
- 4 Burr-less—Cuts cleaner, neater holes. Will cut eccentric holes without binding!



Set No. 1
1/8", 1", 1 1/4"

Set No. 2
1 1/2", 2", 2 1/2"

Set No. 3
3", 3 1/2", 4"

in show window or show case work. The confusion seems to center around the allowance for omitting the armor where the portable lamps or other devices are for "exhibition purposes." The words "for exhibition purposes" should be changed to read "exhibited for sale."

If a merchant or dealer displays portable lamps or appliances he does not need to wire it up with armored cord in order to display his wares in a window. But if the lamp or appliance is not for sale itself but is put in the window to advertise something else, then it is not there for "exhibition purposes" and must be equipped with armored cord.

Full Running Current INTERPRETATION 32

QUESTION: What is meant by the term "full running current" in the definition of motor-circuit switch?

FINDING: The name-plate current rating of the motor. If a motor-circuit switch is used as a controller its rating should be such as to satisfy paragraph b of Section 1004, and be not less than 150 per cent of the name-plate current rating of the motor.

Motor Disconnect Switch Capacity INTERPRETATION 33

NOTE: The following findings assume that the motor controller opens all ungrounded leads and that any auxiliary circuits are fused.

QUESTION: Does paragraph d of Section 1003 require that a switch in a line which supplies three 25 hp. motors, each having motor starting compensators, the motors, the compensators and the main line switch being within the same room and within sight of each other, be of a rating sufficient to interrupt the total load, or may it be a disconnecting switch?

FINDING: On the basis of the above the main line switch may be of the disconnecting type.

QUESTION: If, nevertheless, it were decided to install a switch having a current interrupting rating in the main line as described, what should be the basis for determining its rating?

FINDING: 115 per cent of the name-plate current ratings of the three motors. (See paragraph d of Section 1003.)

QUESTION: If the main line switch above described had a current rating of 115 per cent of the sum of the name-plate current ratings of the three motors, would it satisfy the definition of a motor-circuit switch?

FINDING: Yes.

QUESTION: May fused switches placed in feeders, each supplying two or more motor branch circuits with starting compensators and motor-circuit switches in each such branch circuit, be of the disconnecting type?

FINDING: Yes.

Approved

Because They're Enclosed



TO have SORGEL Air-Cooled Transformers approved by the Underwriters' laboratories is a mark of recognition from the highest authority. The most rigid tests proved SORGEL Transformers to be 100% plus.

Being air-cooled, enclosed, and safe, they can be installed easily and economically in any convenient place inside of buildings. No enclosures or fire-proof vaults needed. No oil. No upkeep.

Standard $1/4$ to 50 KVA.
Other sizes built to order

Single phase, 2-phase and 3-phase
110, 220, 440, 550 Volt

SORGEL
AIR-COOLED
TRANSFORMERS

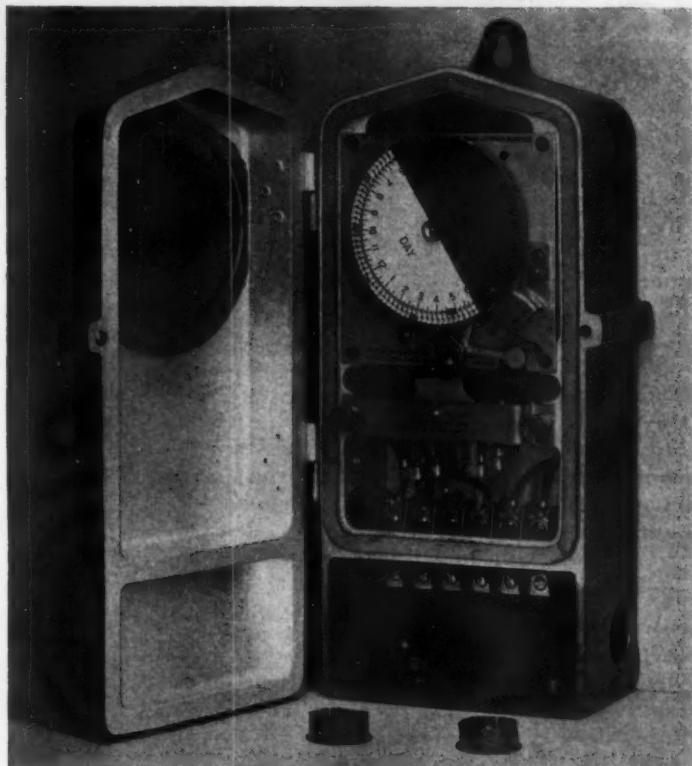
WITH CONDUIT CONNECTIONS

Also Complete Line of Air-Cooled
Booster Auto Transformers
for A. C. Network Systems
Sizes 1 to 500 KVA.

Transformers Designed for Special
Applications

Sorgel Electric Co.
Clybourn and W. Water Sts.
Milwaukee, Wis.

Here's the new
SANGAMO
TIME-SWITCH



AN ALL-AMERICAN PRECISION INSTRUMENT
FOR COMMERCIAL SWITCH-CONTROL APPLICATIONS

THE Sangamo Time-Switch is the product of combined facilities of two American manufacturers—each a leader in its field—Sangamo, makers of Meters, and Hamilton, manufacturer of the "Watch of Railroad Accuracy."

Sangamo Time-switches embody these six necessary features:

1... *Accurate Time Keeping*... insured by the standard Hamilton-Sangamo clock-movement with Hamilton Escapement having a micrometer adjustment.

2... *Unaffected by current interruptions*... The switch mechanism is operated by a clock-mainspring, kept wound by a Sangamo motor. Ample reserve power pro-

vides for current interruptions.

3... *Independent of frequency or voltage variations*.

4... *Made for either a. c. or d. c. operation*.

5... *Low maintenance cost*... simple, sturdy design assures trouble-free operation. All parts interchangeable.

6... *Low first cost*... Volume production of the Hamilton-Sangamo clock movement makes it possible to sell the Sangamo Time-Switch at a moderate price.

For medium-priced installations as well as costly ones, wherever a sturdy and thoroughly dependable time-switch is required... specify Sangamo.

Write for descriptive folder giving complete details.

SANGAMO ELECTRIC COMPANY, SPRINGFIELD, ILLINOIS



*They pick the
No 35 Turner*

THE No. 35 Turner Blowtorch is selected by those who know the value of time. The patented self-generating feature of the No. 35 saves both time and temper. There is NO DRIP CUP to fill and spill. The No. 35 is ready for use in one-fifth of the time required to generate an ordinary blow torch. The working blast can be turned on or off as long and as frequently as desired.

The Turner No. 35 Blowtorch employs a patented internal carburetor and generator. There is never any smoke or yellow flame. An intensely hot blue flame is delivered by the generator directly to the undervein. It acts as a pilot light keeping the torch constantly generated.

For More Information—Send the Coupon

The Turner catalog showing the complete line of Turner products, will be sent to those interested. Just fill in and mail the coupon.

TURNER

THE TURNER BRASS WORKS
813 Park Ave., Syamore, Ill.
Western Branch: 1284 Sunset Blvd.
Los Angeles, Cal.
Please send me complete information and prices.

Name.....
Address.....
Town..... State.....
My Jobber Is.....
Town.....

In the
Editor's Mail



Lost Outlets

Editor,

ELECTRICAL CONTRACTING:

In the April issue of ELECTRICAL CONTRACTING there appeared two letters discussing the need of a shield to keep plaster out of boxes.

Since then I have given this question much thought, and have finally evolved a shield designed for switch and receptacle boxes which, I believe, possesses considerable merit.

The shield is to be made of processed cardboard, and is so designed that it can be inserted or removed with practically no labor, as it is merely sprung in place, and locks itself automatically. It projects past the plaster line, so cannot be plastered over. It can be made in one operation, at a very low cost, possibly cheaply enough to retail for about 2 cents each. It might even be used as an advertising medium. I am at present seeking someone to manufacture and market this article.

H. E. KORAB.

Hamilton, Ohio.

* * *

League Members Use Electrical Contracting

Editor,

ELECTRICAL CONTRACTING:

On behalf of the contractor members of the Electric League of Lafayette, I wish to congratulate you on the wonderful service you are rendering to the electrical contractor in your splendid publication, ELECTRICAL CONTRACTING.

For years the electrical contractor has been groping in the dark, as far as getting legitimate price for his material was concerned. Thanks to

ELECTRICAL CONTRACTING, this evil can be eliminated if the contractor will only use the resale prices suggested.

The members of our league are using this service, and in addition the many helpful ideas and suggestions relative to contracting contained in your publications are proving very beneficial in the operations on their various jobs.

Assuring you that we wish you continued success in your efforts, knowing as we do the benefits that can be derived, I remain,

R. A. BRASSIE,
Pres. Electric League of
Lafayette, Ind.

* * *

Wire Grouping in Pull Boxes

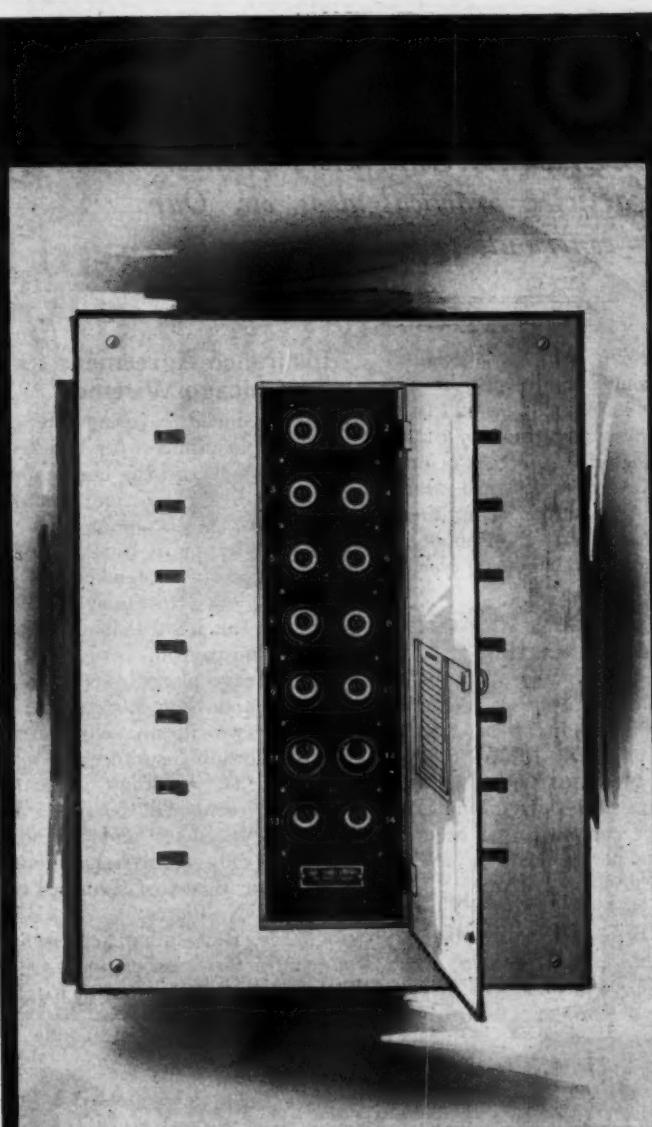
Editor,

ELECTRICAL CONTRACTING:

The recent information furnished to the electrical industry, anent the electrical equipment of the "World's Largest Building," was very interesting and very instructive. There was one feature which was quite profusely illustrated, but the attending evils of which architects, electrical engineers, electrical contractors and inspectors should all unite to reduce to the lowest possible minimum. This is in reference to where "Pull Boxes Eliminate Bends and Offsets."

The use of pull boxes as shown has, of course, many advantages and is to be commended in general, but the one serious hazard presented should be eliminated. This hazard is the grouping together in the same space a number of wires having flammable insulation (rubber-covered

(Continued on page 168)



A-S-E Fuse-Cabs

**Easier to Mount
Easier to Wire**

There's only one way to explain the large volume of orders for A-S-E Fuse-Cabs during the present business depression.

Electrical contractors are paying strict attention to costs.

And they are finding in A-S-E Fuse-Cabs a quality panel assembly—at a cost that is surprisingly low.

Equipped with "Minute Mount" clips at top and bottom, much time is saved in mounting.

The panel is designed for straight and efficient wiring—with neutral terminals on each unit block.

Plaster irregularities are quickly offset with the special Fuse-Cab plaster adjustment.

Tub and panel are reversible to place Riser Knockouts on desired side.

And the knockout arrangement in sides and back of tub is adequate for every requirement.

A-S-E Fuse-Cabs are supplied in sizes ranging from 2 to 24 circuits. Write for catalog D-I.

**All-Steel-Equip Company, Inc.
336 John Street - Aurora, Illinois**



Other A-S-E Electrical Products

Cutout Boxes	Outlet Boxes and Covers	Conduit Fittings
Cabinets	Bar and Box Assemblies	Specialties
Switch Boxes		

A-S-E Boxes and Fittings—A Complete Service

FREE SAMPLE

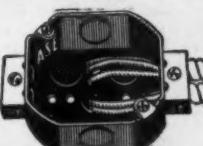
The coupon will bring you a free sample of the new A-S-E Outlet Box with two Jay-Kay outside clamps. Accommodates four leads of cable—and provides more room on the inside of the box for wiring and splicing. All-Steel-Equip Company, Incorporated 336 John Street—Aurora, Illinois

Please send me a free sample of the new JK-4-O Outlet Box.

Name.....

Address.....

City..... State.....



Contracting News

Information of Interest to Electrical Contractors consisting of items of news, short articles, practical ideas, etc. Our readers are invited to contribute to this department.

Heavy Reservations for Milwaukee

Advance reservations at the Hotel Schroeder, Milwaukee, for the Thirtieth Annual Convention of the Association of Electragists, August 18, 19 and 20, have been heavy, indicating a record attendance. The local committee, according to George Andrae, vice-chairman, has everything well in hand and has worked out a full entertainment program with the assistance and co-operation of the branch of the local industry.

The convention program, as announced last month, provides for sessions each morning and afternoon, the Tuesday morning and the two Wednesday sessions being open to everybody. Monday afternoon will be devoted to a chapter round table, attended by presidents and secretaries of Electragist Chapters with the executive committee. Tuesday afternoon will be devoted to section meet-

ings, including Motor Specialists' Merchandising and Labor.

The convention will be addressed this year by the presidents of the National Electric Light Association and the National Electrical Manufacturers' Association. The former is expected to clarify the thinking of the NELA on merchandising policies.

Boston Sponsors Industrial Modernization

Electrical modernization of industries is being actively promoted by the Metropolitan Electrical League, Boston, Mass. The Electrical Modernization of Industries Committee has held several meetings to date and an executive committee has been appointed, the personnel of which is: Julius Daniels, chairman; R. R. Ringer, J. M. Whittier, Earl Lancaster, J. L. Busey, B. W. Robertson, A. D. Stein, J. J. Caddigan, L. L. Edgar, J. F. Davis and E. G. Jay.

Insurance Agreement for Chicago Wiremen

An agreement covering life and disability insurance for electrical workers in Chicago has been entered into between the Chicago Electrical Contractors' Association and the Union. Collection of funds will start the first week in September and, according to the agreement, are to amount to not more than 6 per cent of the union payroll.

The Chicago plan differs from the St. Louis and New York plans, the only other two cities having electrical workmen group insurance, in many respects. The Chicago agreement sets up a permanent board of five trustees. Vacancies on this board can occur only from resignation or death. The Board of Trustees consists of J. N. Pierce, J. W. Collins and M. N. Blumenthal, representing the contractors' association; O. F. Fuchs, a non-member contractor, and



LARGE ATTENDANCE AT FIRST ANNUAL PICNIC: Approximately 400 people attended the first annual picnic of the Columbus (Ohio) Chapter of Electragists, held recently at the Humboldt Country Club near Columbus. The afternoon was devoted to athletic events, including baseball at which the contractors were defeated by a team of wholesalers. At a tug o'war later in the afternoon, however, it is said the wholesalers were dragged all over the field by the wire-pullers. Dancing was in order throughout the evening and a male chorus was featured. About 25 prizes were awarded including a \$250 radio set.



A new line of Appleton Unilets for use with Steeltubes— Threadless Thin Wall Conduits



Appleton Engineers have again made an important improvement for the use of Steeltubes—Threadless Thin Wall Conduit, with Appleton No-Thread Unilets.

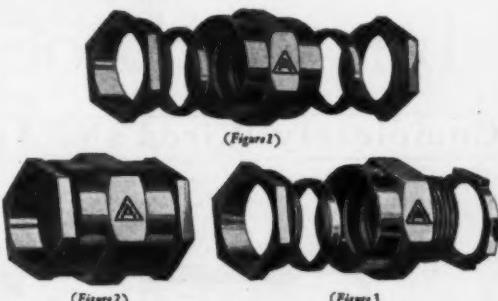
A new brass sleeve with a tightening nut now quickly and easily fits into the Unilet designed for use with Steeltubes. The brass ring drops into position and the nut tightens the ring securely to the Thin Wall Conduit and makes it a vapor-proof connection. This is a simple and efficient method—less cumbersome in handling and in appearance, and saves time and labor in installing.

The opening in the new fitting takes all standard covers and receptacles for Rectangular Unilets.

These new Unilets can be shipped from stock simply by specifying catalogue numbers applying to the Threaded Unilets and adding the letter T. For example, 9002T. Write for information.

New Couplings and Connectors

The new brass ring and tightening nut are also used as part of the Coupling in connecting two pieces of Thin Wall Conduit (see figure 1); and are used with the Connector in connecting the Thin Wall Conduit with a "knock out" box (see figure 3). Figure 2 illustrates the Coupling as it appears when assembled.



SOLD THROUGH JOBBERS

APPLETON ELECTRIC COMPANY

1704 Wellington Ave., Chicago, U. S. A.

Appleton No-Thread Unilets are listed as Standard by Underwriters' Laboratories in 3½-inch to 4-inch sizes, inclusive.

New York—150 Varick St.
San Francisco—655 Minna St.

Los Angeles—340 Azusa St.
Seattle—628 Railroad Ave.

APPLETON No-Thread Malleable UNILETS

For Steeltubes—Threadless Thin Wall Conduit

APPLETON ELECTRIC COMPANY
1704 Wellington Avenue, Chicago

Gentlemen:

Please send us a copy of New Revised Catalog on Unilets and Conduit Fittings, together with prices.

Name _____

Address _____

City _____ State _____



Showcase Lighting

Single Unwired Units

No. 90, length 9", height $1\frac{1}{8}$ ", face opening $2\frac{1}{8}$ ".

For T-10 Lamp



No. 90.

No. 96, length 9", height $3\frac{1}{8}$ ", face opening, $4\frac{1}{4}$ ".

For Standard Lamps to 60 watt.



No. 96.

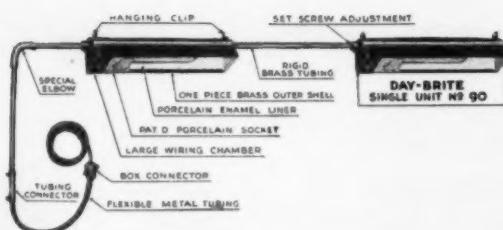
No. 121, length 12", height $4\frac{1}{4}$ ", face opening $5\frac{1}{2}$ ".

For Standard Lamps to 100 watt.



No. 121.

Completely Wired and Assembled Sets



Day-Brite Sectional Showcase units are also furnished in completely wired and assembled sets, complete, ready for installation.

For complete data, see catalog 8-A, if you do not have a copy, write for one or ask your electrical jobber.

REFLECTOR DAY-BRITE COMPANY
3825 Laclede Ave. - Saint Louis

D. F. Cleary, who is a member of the executive board of the union.

Under the agreement the trustees are to procure group insurance from such solvent insurance company or companies as have been admitted to do business in the state of Illinois. The trustees are to set up a reserve fund as a protection against future inadequate payments to the fund as the result of poor building conditions. The trustees will collect the insurance money, but will have no hand in its investment. This has been specifically provided for in the agreement whereby the Continental Illinois Bank & Trust Company is declared to be the investee agent for the sole purpose of investing and re-investing the insurance funds. The trustees may select a different investing agent, but any other such agent must have a capital and surplus of at least \$2,500,000.00.

It is possible that this plan may provide for other than life and disability insurance, such as old age and general welfare work, but if so the plans specifically provide that such payments must be made out of income produced by surplus only. In other words, the surplus must not be depreciated. Trustees cannot change the plan except upon written agreement of the two interested bodies, i. e., the contractors' association and the union.

Any contractor may participate in the agreement by meeting its terms.

No details are available at this time as to the amount of insurance to be provided or as to the date on which the insurance will become effective other than that it covers only members of the union who are employed by participating contractors.



GOES INTO BUSINESS: Art H. Welkin of Fort Wayne, Ind., who was former city inspector, has now gone into the electrical business for himself.



*I
turn
electric
lights
on and
off
regularly*

I am needed in
more places
than ever before



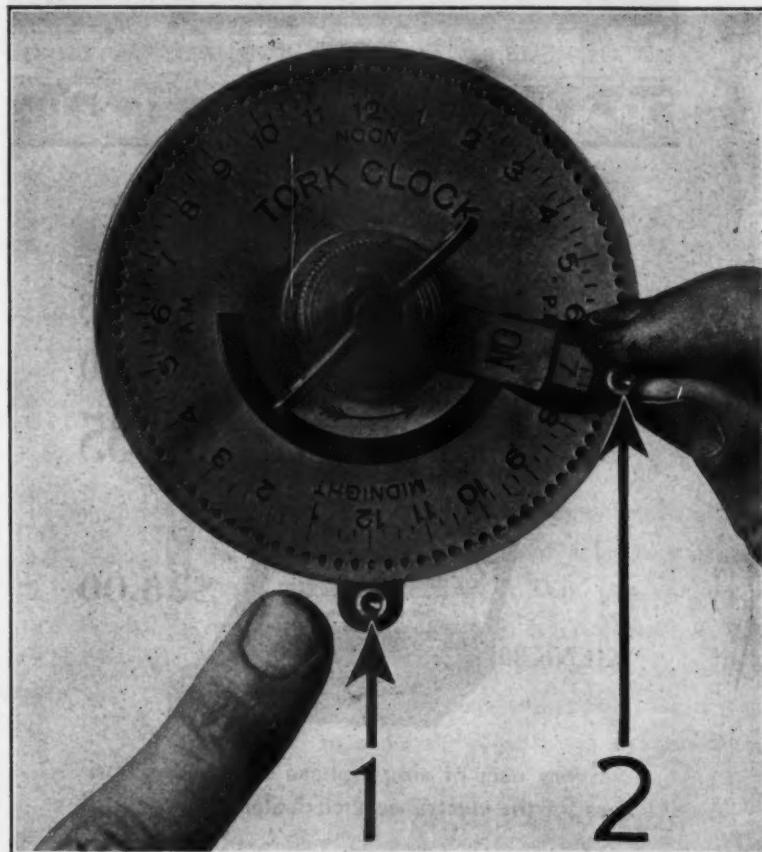
The Time Pointer

The dial rotates once every 24 hours. The stationary pointer [red] points to the correct time. It is 4 o'clock. Notice that the figure 4 [P. M.] is opposite the pointer. Dial can be set on time instantly without disturbing the "on" and "off" arms.



Easy to Use

TORK CLOCKS are popular with the people who use them. The dial arms set easily, definitely without disturbing dial and without tools. The center wind, with key always in place, is constructed to make overwinding impossible. The switch may be operated safely and easily by hand without effecting the automatic operations.



"Put Down 1—and Carry 2"

No. 1 is the "off" arm [Black]. Press the button and set it for "lights out."

No. 2 is the "on" arm [Red]. Lift it and click it into the right hole for "lights on."

TORK CLOCKS

are used all over the world for turning electric lights on and off regularly at the right times in store windows, electric signs and for a great variety of timed electrical service.

Latest Price Bulletins on Request

TORK CLOCKS, Inc., 12 East 41st St., NEW YORK
Factory and Service Department now consolidated at
LINDEN, N. J.



Service
—your fellow merchants
quickly and profitably with
Ohio Brush Kit No. 35



Kit No. 35

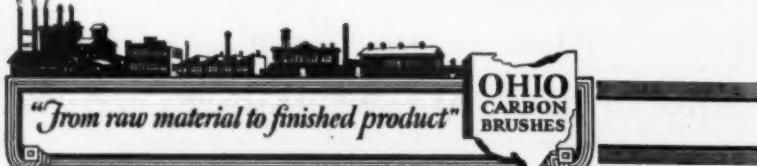
Every user of single phase motors has business for the electric service dealer.

Motors on coffee grinders, meat choppers, shoe repair machines, and other types of single phase motor driven equipment can be quickly and profitably given brush service from the Ohio Kit No. 35.

This Ohio Kit, which is small enough to carry under your arm, contains 122 brushes and will service over 300 types of single phase motors. With this kit on your shelf, you are equipped to give prompt, efficient service. We carry a complete stock of refills for immediate delivery.

The Ohio Carbon Co.
12508 Berea Road Cleveland, Ohio

West of Rockies
351 Ninth St., San Francisco, Calif.



OHIO
CARBON
BRUSHES



ELECTED PRESIDENT OF DENVER ASSOCIATION:—J. R. Collier of the Collier Electric & Radio Co., Denver, Colo., was recently elected president of the Denver Electrical Contractors' Association. The other officers elected were C. F. Oehmiller, vice-president; George A. Graveline, secretary, and L. A. Vosmer, treasurer.

**Minneapolis Revises
Ordinance**

Number 8 wire is the minimum size permitted for the service connection to the switch in Minneapolis, Minn., according to amendments to the ordinance recently passed by the council of that city. The amendments also require a minimum of No. 10 wire between the entrance switch and meter.

Cut-out boxes and cabinets containing four or more circuits are required to have back wiring spaces, side gutters, or wiring compartments, unless the wires leave directly opposite terminal connections.

* * *
**Increase Wire Allowance in
Underfloor Duct**

As a result of a letter ballot of the Electrical Committee, it is announced by A. R. Small, chairman, that the cross-sectional area of the combined conductors in underfloor raceways can be as great as 40 per cent of the cross-sectional area of the raceway instead of the 30 per cent now provided in paragraph O, Section 506, of the Code.

It was also voted that paragraph C, Section 3504, is now to be understood as reading:

"c. The source of illumination for the projected view shall be an approved lamp of a pattern expressly

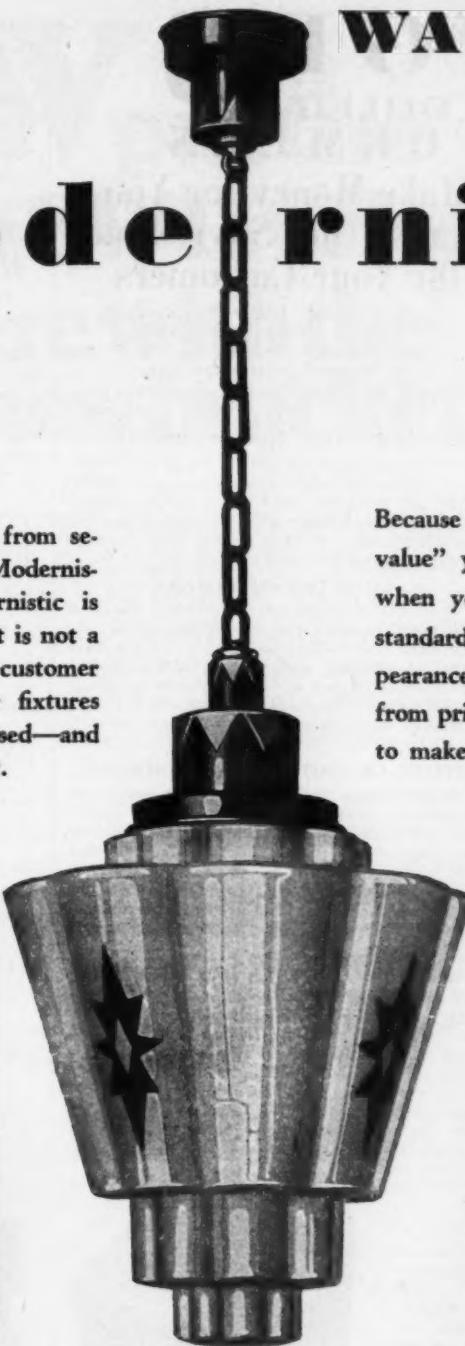
M WAKEFIELD o d e r n i s t i c

COSTS
NO
MORE

Price will never prevent you from securing a job with Wakefield Modernistic because Wakefield Modernistic is popularly priced. Of course it is not a cheap unit, but when the customer compares it with any other fixtures offered he is invariably surprised—and pleased—at its reasonable cost.

PAYS
MORE
PROFIT

Because Wakefield Modernistic has "eye value" you can add a larger mark-up when you sell it than you can on a standard hanger. Its distinctive appearance, its up-to-dateness gets away from price competition and enables you to make the money you're entitled to.

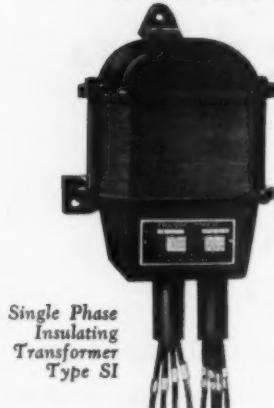


SELL WAKEFIELD MODERNISTIC FROM THE PICTURE. SEND FOR DATA SHEET 900 AND SHOW IT TO SOME OF THE PROGRESSIVE MERCHANTS IN YOUR NEIGHBORHOOD. THEY ARE THINKING RIGHT NOW ABOUT REMODELING AND REDECORATING. SELL THEM THE IDEA OF REFIXTURING—WITH WAKEFIELD MODERNISTIC. DON'T PUT IT OFF. WRITE TODAY FOR YOUR COPY OF DATA SHEET 900.

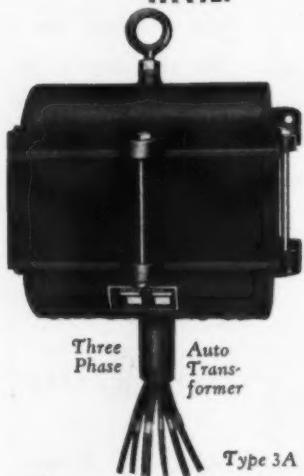
The F. W. WAKEFIELD BRASS COMPANY, Vermilion, Ohio, U. S. A.

SURGES AIR-COOLED TRANSFORMERS

**Make Money for You
Because They Save Money
for Your Customers**



Single Phase
Insulating
Transformer
Type SI



Three Phase
Auto
Trans-
former
Type 3A



Phase Changing
Transformer
Type 2-3AI

on lighting jobs, for phase changing, electrical tools, welding apparatus and for boosting on net work systems and many other applications such as street lighting, etc., etc.

INSULATING TRANSFORMERS

Insulating transformers consist of two separate windings entirely insulated from each other. They are generally used when either primary or secondary voltage exceeds 250 volts; for changing voltage in ratios greater than 2:1, such as from 460 to 115 volts.

AUTO TRANSFORMERS

Auto Transformers are the simplest and most economical means for changing alternating current from one voltage to another. They have only one winding, with primary and secondary terminals connected at various points according to the voltage transformation desired.

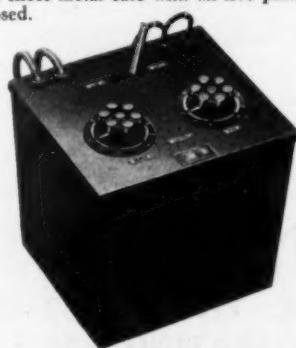
Surges auto transformers are built in sizes $\frac{1}{2}$ to 50 KVA.

PHASE-CHANGING TRANSFORMERS

Phase-Changing Transformers provide an economical means of operating 3-phase motors and other devices from 2-phase supply lines, and vice versa. Type 2-3AI, a combination auto and insulating transformer, is usually used where both primary and secondary circuits are grounded. Type 2-3A, an auto transformer may be used where only the secondary circuit is grounded.

RADIAL SWITCH TYPE TRANSFORMERS

Radial Switch Type Transformers provide such fine voltage control that they permit operation of electric furnaces at practically any desired temperature. Approximately 50 voltage steps are provided by taps in the primary and secondary windings. The complete unit, illustrated below, consists of the transformer, 2 tap switches, and a single pole double throw switch, mounted in a sheet metal case with all live parts entirely enclosed.



Radial Switch Type
Transformer

Every contractor should learn more about the opportunity SURGES AIR COOLED TRANSFORMERS offer for increased sales to industrial customers. Practically every industrial plant and large building is a prospect. Let us tell you more. Our corps of transformer experts will help you.

**SURGES ELECTRIC COMPANY
MILWAUKEE, WIS.**

Special Air Cooled Transformers to fill specific needs. Send us your requirements.

intended for stereopticon use or for motion-picture projection."

The Electrical Committee has also voted to recognize voting membership in electrical committees of representatives of cooperating bodies not listed as having representation in the Electrical Committee.

* * *

New York Associated Contractors Qualify Members

The Associated Electrical Contractors of New York, an association recently formed by twenty contracting companies in Greater New York, qualifies membership in its organization, as follows:

1. Member must be engaged in the business of electrical contracting as principal business.
2. Company must have its main place of business in New York City, with a sign or placard displayed announcing that it is in the business of electrical contracting.
3. Member will employ electrical wiremen.
4. A complete set of books of accounts and records will be kept.
5. The company must not be a member of any other trade association in the building industry.
6. Member must have been engaged in the electrical business for a period of five years prior to date of membership.

Although this association has only been operating for four months, according to A. Lincoln Bush, its president, it has had considerable success in maintaining a survey bureau and credit plan for the benefit of its members. Carl G. Widman is secretary.

* * *

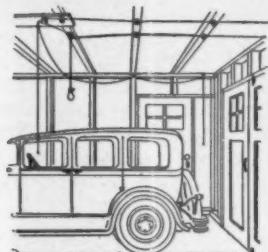
New Officers for California Estimators

The Estimators' Section of the California Electragists, southern chapter, recently selected new offi-

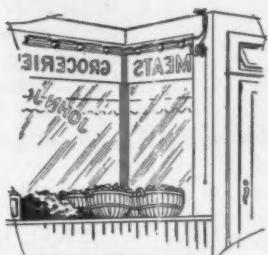


REPRESENT 115 YEARS IN BUSINESS: When the time these three Toledo contractors have been in business is added up it equals 115 years. They are, left to right, C. W. Whipple, M. V. Hansen and F. E. LaFrance. Mr. Hansen was formerly national director from Ohio of the National Electrical Contractors' Association.

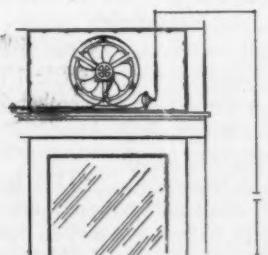
now put the *Levolier* SWITCH™ anywhere with the new bracket!



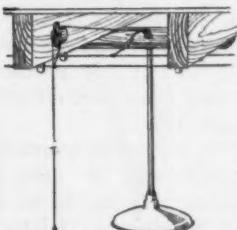
Providing Cord at Car Window
and at Garage Door



For Store Windows and
Temporary Display Booths



For Ventilating Fan Over Sink
Where Difficult to Reach



For Open Wiring

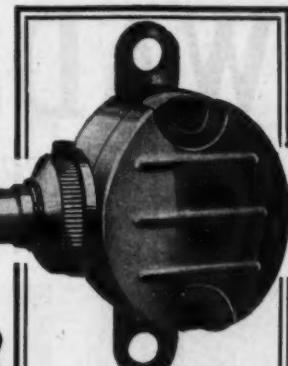
THE famous Levolier Switch that takes the continuous wear and tear of switching on and off 500 watt gas filled lamps, can now be used for many new applications through the use of the new Levolier Bracket.

With the new bracket you can put the Levolier Switch where you want it—and quickly, too. The pictures at the right show graphically just how the Levolier Switch Bracket works. It fits like a part of the switch, it holds the switch firmly wherever installed and it is small and inconspicuous. Speedy, reliable installations are assured.

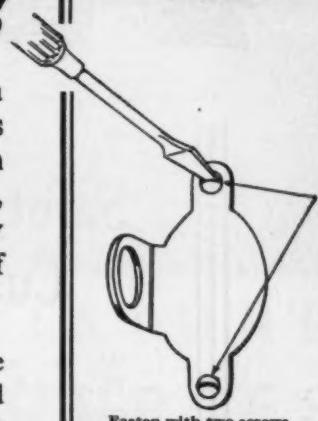
The sketches at the left offer a few suggestions as to how the new bracket may be used. You will think of many more applications—ways in which this little bracket and the Levolier Switch will save you time and money.

Send for Sample

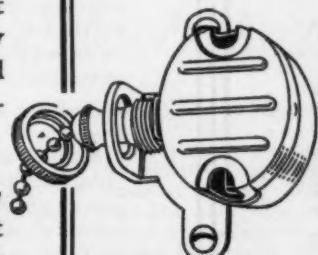
See for yourself just how the new Levolier Switch Bracket works. Samples of the Levolier Switch and the new Levolier Switch Bracket will be mailed free for the asking.



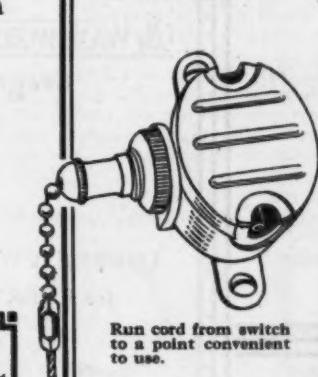
Showing Levolier Switch
installed with Bracket.



Fasten with two screws
to ceiling, wall or de-
vice being installed.



Place Levolier Fixture
Switch thru opening
and screw on nut.



Run cord from switch
to a point convenient
to use.

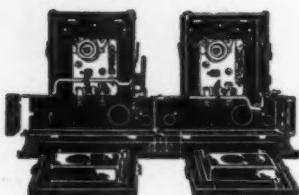


MCGILL
MANUFACTURING CO.
Electrical Specialties of Quality
ESTABLISHED 1894
VALPARAISO • INDIANA

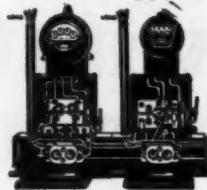


WADSWORTH

SAFETY SWITCHES



No. 1451-T
Accessible Fuse
Channel Banking Type



No. 372-362
Sealed Fuse
Channel Banking Type
Showing Branch Fuses in
same Cabinets

Safety for your Customers

We are manufacturers of Safety Electrical Switches of a design and quality that do meet the needs of electrical contractors.

Good Goods—that can be installed with less trouble—meet all your installation requirements and give entire satisfaction and Safety to your customers.

Backed by a responsible Company rendering a service that meets your particular needs and having exceptional facilities to serve in an emergency when rapid decision and immediate action is necessary.

The WADSWORTH ELECTRIC MFG CO INC
Covington, Kentucky

THERE'S A WADSWORTH SWITCH
for EVERY INSTALLATION



INCREASES VOLUME 400 PER CENT AFTER MOVING DOWNTOWN: The Vesh Electric Co. found it profitable to have a downtown location, since in Logansport, Ind., customers can park their cars downtown. From left to right are S. Vesh, Albert Holly, Mary Smith, Everett Ray, MacAnthony Vesh and J. A. Vesh.

cers and made numerous committee appointments, as follows: P. R. Mac-tolf was elected president; W. N. Williams, vice-president; M. L. Fish, treasurer; P. A. Shrader, secretary. The executive committee consists of R. J. Hanchett, G. B. Capps, R. L. Booth and H. W. Burdick.

Various committee chairmen appointments were as follows: Architects and engineers, R. L. Booth; Data and Program, P. A. Shrader; Estimating, W. L. Hyde; School, P. A. Shrader; Ordinance, L. H. Ellett; Editorial, P. H. Shrader; and Reception, H. H. Hamm.

The section recently moved its meeting place from the Chamber of Commerce Building to the Paris Inn at 320 Market St., Los Angeles.

* * *

Eastern Inspectors to Meet at Pittsfield

The Eastern Section of the International Association of Electrical Inspectors will meet on September 22, 23 and 24, at Pittsfield, Mass.

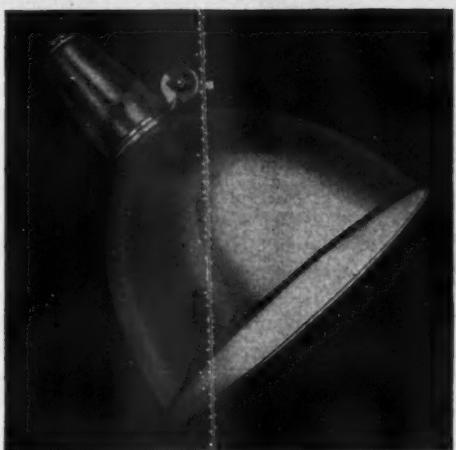
The program of the meeting includes a discussion of "The Bare Grounded Neutral," and speakers on this subject have been invited from Detroit Edison Co., American Waterworks Association, National Electric Manufacturers' Association and the Association of Electragists.

Inspectors' problems will also be discussed thoroughly, and members are urged to submit any problems over which they have had difficulty during the past year.

A contest in which all inspectors may participate will be held. A miniature house will be wired up with a great number of violations, and prizes will be awarded to the



*Outdoor LIGHTING
is growing fast and
IVANHOE
LIGHTING EQUIPMENT
makes growth possible*



... MINIATURE GOLF COURSES

a new and rich field for the Electrical contractor

GOOD lighting, extra good lighting, is the breath of life to these miniature golf courses, now springing up everywhere in the crowded centers of population. The crowds that throng these courses are night crowds. They play by night because they can play by light. Light is the backbone of their success. *Ivanhoe Lighting Equipment is having the call.*

Course operators know that the better the lighting, the bigger the crowds—and the bigger the income. These people make hay while the lights shine.

This is a new market for the electrical contractor. He can cash in on this and other outdoor lighting in a big way. And note, you may expect further rapid development of lighting up for sport. Already we have lighted tennis courts, cricket courts, base-ball arenas, swimming beaches, golf practice courses. Lighted football fields and race tracks are coming fast. Sports promoters are discovering

the new pot of gold in the crowds that can come by night—if there's light.

Ivanhoe Lighting Equipment seems to be built to order for these outdoor lighting jobs. The REDD 500 and the 1067 Swivel Reflectors are two notably popular and efficient items for this purpose. They give concentrated directed light without glare or harmful, disconcerting shadows. And there is Ivanhoe Lighting Equipment for every outdoor or indoor need.

Sports promoters know that light is the backbone of night sports success. These people can afford only the best. Indeed, they must have it. Ivanhoe Lighting Equipment, installed by a competent contractor, almost guarantees success.

For more information about this fast growing field or for expert assistance in laying out the job, get in touch with the nearest Ivanhoe distributor. He can also help you by quick delivery of Ivanhoe Lighting Equipment. If by any chance you don't know him, write or wire us direct for the information.

Ivanhoe Division of THE MILLER COMPANY, Home Office, Meriden, Conn.

IVANHOE
A COMPLETE LIGHTING SERVICE

Man Alive!



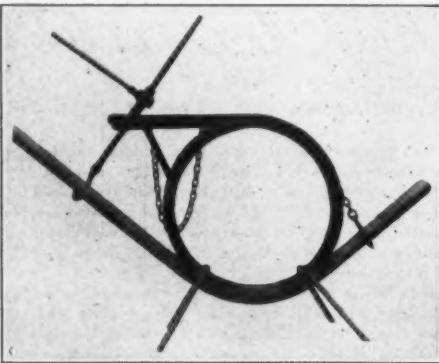
*look at
the bends
you can
make in
pipe or
conduit*

with this NEW

Portable HEER BENDER

—no heating —no packing

Save 2/3 of your pipe or conduit bending costs. Do the work right on the job. Make a perfect bend every time. One man does the work of three and does it quicker, better, cheaper. A 90° bend in a 4-inch pipe can be made in 18 minutes with a HEER BENDER—the only lightweight portable bender that does not require packing or heating of the pipe.



Solve all your bending problems with a HEER. Write for full details and free demonstration offer. No obligation. Don't delay. Write today. Used by leading contractors everywhere.

DISTRIBUTORS

A few choice territories still open. Responsible firms will profit by this representation.

ALLIED SALES CO.
Pittsburgh Life Bldg.
Pittsburgh, Pa.

Send me FULL information regarding HEER PORTABLE PIPE BENDERS. Also details of your FREE DEMONSTRATION OFFER. No obligation to me.

Name.....

Address.....

MAIL THIS COUPON

various inspectors making the highest scores.

Chester J. Peacock, 109 Leonard St., New York City, is chairman of the convention committee.

* * *

Harrisburg Association Raises Wiring Standards

Although the Harrisburg Electrical Contractor - Dealers' Association, Harrisburg, Pa., is one of the newer associations, it already has a number of plans working to improve conditions in the industry.

A program whereby the members are giving customers standard installations and material with good workmanship has been established.

An estimating committee has been appointed whose duty is to assist contractors in establishing an average operating cost to be used as overhead in estimating. Also, a system of filing poor credit risks has been devised.

Other activities and committees, including connections with the local utilities for better service, a grievance committee, a legal committee and attorneys are all working together to promote the electrical business to the position it should occupy.

The association has a limited membership of 32 contractors and dealers, having established businesses.

* * *

New York Contractors' Association Officers

At the two-day convention of the New York State Association of Electrical Contractors, recently held at Utica, N. Y., the following officers were elected: Louis Freund, New York City, president; Richard Whale, Buffalo, vice-president;



ATTEND SCHOOL REGULARLY BUT NEVER GRADUATE: C. M. Henry and Vincent Murphy of the Henry Electric Co., Fort Wayne, Ind., are specialists in school house wiring although the firm is only two years old.

ALL METAL FLOODLIGHTS & REFLECTORS

Made of Rayalium, a special prescription metal of our own. Especially noted for its lasting brilliancy and durability.



No. 2150 & 2200
Show window reflectors. An all metal, non-breakable reflector for all general show window lighting.

No. 750
A guaranteed weather-proof light. Castings and body are made of aluminum and coated with genuine Duco.

No. 624
Floor and Spot Light for window illumination. Requires no cord or plug.

No. 501 Spotlight and No. 502 Floodlight

The biggest business builder in the business; only \$5.00 list and will give a lifetime service; complete with color screens and shutter, cord, plug, and universal bracket. Don't buy dishpan aluminum, insist on rayalium. It never corrodes or tarnishes.



No. 501 SPOTLIGHT AND
No. 502 FLOODLIGHT

MARVEL-LITE PRODUCTS

Give longer life to every installation

Marvel-Lite products meet the Floodlight and Reflector needs most satisfactorily of both you and your customers. They're exceptionally easy to install and are scientifically correct in design—giving your customers maximum lighting efficiency. For detailed description of this high quality line, write to the Marbelite Art Products Co., 2652 W. Lake St., Chicago, Ill.

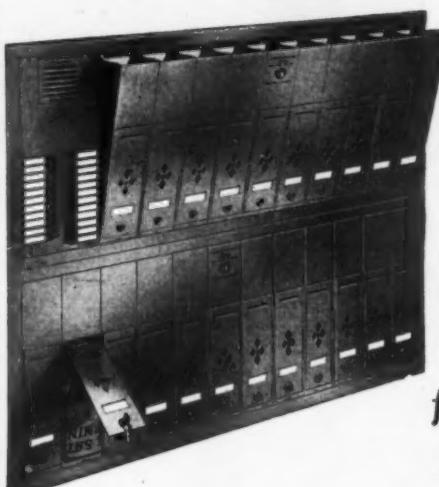


No. 5500
FLOODLIGHTING
LANTERN

MARVEL-LITE PRODUCTS

Couch
TELEPHONES
ESTABLISHED 1894

TELEPHONES



and

MAIL BOXES

for every size
and class of

APARTMENT HOUSE

The cut above illustrates a combination mail box and loud speaking vestibule set for a 22 suite apartment house.

Top row of Couch "Tilting" Mail Boxes is tilted forward for deposit of mail by postman and one tenant's door in bottom row is open for withdrawal of mail.

Write Today for Bulletin No. 89 and Price List

S. H. COUCH COMPANY, Inc.
NORFOLK DOWNS, MASS.

BOSTON: 170 Purchase St.	PHILADELPHIA: 1725 Sansom St.	CHICAGO: 800 W. Jackson Blvd.
DETROIT: 1444 Park Place	DALLAS: 2205 Leonard St.	ST. LOUIS: 917A Pine St.
CLEVELAND: 14250 Superior Rd.	ATLANTA: Bona Allen Bldg.	ASHEVILLE: P. O. Box 1892
DENVER: 1715 California St.	TAMPA: 114 W. Alfred St.	MINNEAPOLIS: Harry P. Smith Co. 1017 Lumber Exchange
NEW YORK: 487 Broadway	INDIANAPOLIS: Scott-Jaqua Co., Inc. 202 Indiana Terminal Warehouse	
	SAN FRANCISCO, LOS ANGELES, PORTLAND, SEATTLE: Sierra Equipment Corp.	
MONTREAL: Franke, Levasseur & Co., Ltd.		TORONTO: Canadian Telephones & Supplies Co., Ltd.

QUALITY THAT SPEAKS FOR ITSELF



INCREASES FIXTURE SALES 100 PER CENT: P. B. Arnold of the P. B. Arnold Co., Fort Wayne, Ind., increased fixture sales 100 per cent by placing them in the front of the store as well as in the display room at the rear.

James F. Burns, Schenectady, treasurer; Herbert F. Janick, Rochester, secretary; A. Lincoln Bush, New York City, chairman of the board; L. R. Rogers, Schenectady, G. Fred Laube, Rochester, S. J. O'Brien, New York City, E. C. Brown, Rockville Center, and L. W. Kiesewetter, Syracuse, members of the board.

* * *

Lackawanna-Wyoming Chapter Hold Outing

On July 23 the Lackawanna-Wyoming Valley Chapter of Electragists held an all-day outing. This was strictly an electrical affair, with the exception of the presence of the Mayor and City Councils of Wilkes-Barre and Scranton, who were guests of the Chapter. A mid-day luncheon was served, followed by a clambake later.

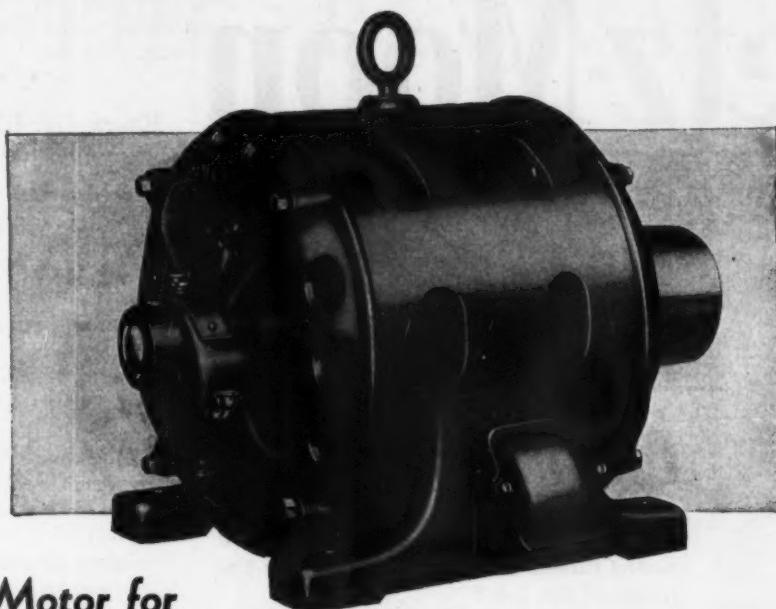
* * *

York Contractors Help Plan Code

The Electrical Contractors' and Dealers' Association of York County, Pa., have a committee actively working with a civic committee for the purpose of formulating a building code for the city of York. This is only a part of the activities of this newly formed association. It was organized in March with about 85 per cent of the contractors in the section joining.

The association has established an office, social and display rooms in York, where frequent meetings are held. On July 24 the annual elec-

THEY KEEP A-RUNNING



5 Horse Power Century
Type RS Repulsion
Start Induction Single
Phase Motor.

The Motor for

PUMPS--COMPRESSORS--OIL BURNERS ELECTRIC REFRIGERATORS

Specially designed to meet the heavy starting requirements of pumps, compressors, electric refrigerators, oil burners and similar apparatus, Century Type RS Repulsion Start Induction Single Phase Motors also possess the advantages of low starting current. Their starting torque is not less than 250% of full-load torque—their starting current is not more than 260% of full-load current.



1/6 Horse Power Century
Type RS Repulsion Start
Induction Single Phase
Rubber Mounted Motor.

Dampness does not affect them. The windings are thoroughly insulated and are then saturated with insulating varnish—this preserves the insulation and protects the windings against moisture . . . The brushes last...Sleeve bearings are of phosphor bronze, the best bearing material obtainable. Grease-lubricated ball bearings can be furnished, if desired.

Built in standard sizes from 1/8 to 40 horse power.

CENTURY ELECTRIC COMPANY
1806 PINE ST. • ST. LOUIS, MO.

40 U. S. and Canadian Stock Points and More Than 75 Outside Thereof

SINGLE PHASE,
THREE PHASE,
AND DIRECT
CURRENT MOTORS

Century
MOTORS

MOTOR GENERA-
TOR SETS, ROTARY
CONVERTORS, FANS
AND VENTILATORS

FOR MORE THAN 26 YEARS AT ST. LOUIS

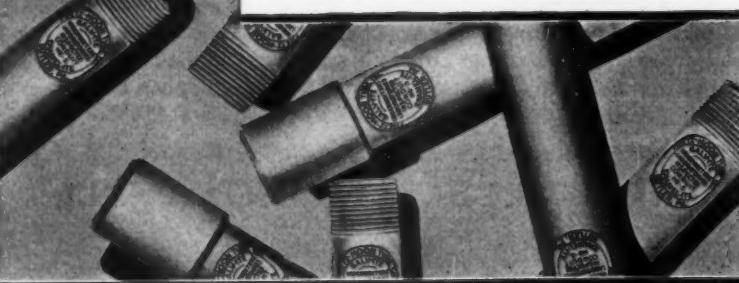
Fretz-Moon

Isn't it a Fact--

That time lost running in conduit means hustle and worry for you at the finish of the job?

To save costly overtime use conduit with perfect threads—positive welds—glass-like inner enamel—conduit that will mean a quick workmanlike job. Just the very reason why so many contractors are using Fretz-Moon Conduit.

FRETZ-MOON TUBE COMPANY, INC.
Butler, Pa.



RIGID CONDUIT

trical picnic was held at Elm Beach under the auspices of the association.

The officers are: H. B. Reisinger, Industrial Electric Co., president; Ross McAfee, Home Electric Co., secretary, and Charles Eyster, treasurer.

* * *

Essex (N. J.) Contractors Hold Outing

The Electrical Contractors' Association of Essex County, with headquarters in Newark, N. J., recently held an outing at Mazda Brook, N. J. Contractors, radio dealers, jobbers, inspectors and manufacturers were invited. The program included baseball, golf, swimming, running, quoits and tug-o'-war.

This association is among the oldest in the country, having held regular meetings for the past 22 years. The association maintains a general office, and all of its members are kept in touch with changes in the Code, legislation, labor disputes, disposition of excess materials and other matters of business interest.

* * *

Kentucky Inspectors Elect Officers

The Kentucky Chapter of the International Association of Electrical Inspectors elected Floyd I. Fariman, of Paducah, chairman at a convention meeting held July 19 at Paducah.

Others elected are: W. W. Schakleiter, Louisville, vice-chairman, and



WIRES AMERICA'S TALLEST SCHOOLHOUSE: T. J. Keilhacker, left, and M. S. Enlow, of the Iron City Engineering Co., Pittsburgh, are wondering if they can reach the switch without a stepladder. It is part of the electrical work on the 40-story Cathedral of Learning.

THE REVIVAL of a QUAINT CUSTOM

It is not what you know, but how well you know how to use what you know that really counts.

It is just as important to forget some things as it is to remember others, so let's forget the headaches of the past, put on our working clothes, take an extra hitch in our belts, and take faith in the fact that there are no improvements yet discovered for truth, confidence, loyalty, and intelligent effort consistently applied to one's business.

Let's revive the quaint custom of working and take the calamity howlers for a ride.

YOUR SILENT PARTNER

Is the title of a little booklet we have just issued.
It is a straight from the shoulder answer as to why
some Contractors are successful while others strug-
gle on year after year without getting anywhere.



WOULD YOU LIKE TO READ IT?

It is yours for the asking. Simply attach the cou-
pon below to your letterhead and your copy will
be sent immediately.

HENDERSON-HAZEL CORPORATION
5005 Euclid Ave., Cleveland, Ohio.

Please send us without obligation your booklet, "Your Silent Partner."

Name.....

Address.....

City or Town.....

State.....

EC8-30



Type CC-NT

**Some More Helpful Members
of the THREADLESS Adaptilet
Family of "Trouble-Savers"**



Type CA-NT

**For
Instance—**

Same overall dimensions as corresponding regular rigid lines—Take same corresponding covers, receptacles, covers, and wiring devices—Ample room for switches, yet gang switches are conveniently small width. Grip like a bulldog's. Fittings are approved, of course.



Type 620-NT

THREADLESS Adaptilets—like all the ADAPTⁱ Fittings—are made with an eye to all those little practical advantages which mean so much to the "man on the job".

Type FS0
No. 8520-NT

Write
for
Sheet 3-A
Cat.
107-A

Type FS
No. 8510-NT

The ADAPTⁱ Co.

2996 East 72nd St., CLEVELAND, OHIO

NEW YORK CITY—A. Stone, 112 East 23rd St.

BOSTON, MASS.—E. R. Bryant, 52 "B" Street

CHICAGO, ILL.—United Electric Sales Co., 300 W.

Adams St.

PHILADELPHIA, PA.—Craven Electric Sales Co., 30

Bank St.



IN BUSINESS SINCE 1859: The firm of Hattersley & Sons, in business since 1859 in Fort Wayne, Ind., now specialize in the larger types of wiring jobs. In the rear, left to right, are Eugene Hattersley, Bob Hattersley, and H. A. Mertz. In the front row are Misses Driscoll, Pratt and Salmon.

Victor F. Knadler, Louisville, secretary-treasurer. New members added to the executive committee are Walter B. Dieks, Louisville, and D. T. Wadsworth, Covington.

It was decided that the next meeting of the chapter will be in Louisville next January.

* * *

**Cincinnati Plans Red Seal
Activity**

The Cincinnati Electric Club, Cincinnati, Ohio, announces approval by jobbers, dealers and contractors of the following Red Seal program:

1. Several thousand dollars to be spent on Red Seal by next fall.
2. Employment of a field man to push Red Seal in building circles.
3. Pressure on contractors to fix the Red Seal insignia upon homes rating the honor.
4. Advertising campaign to be waged.
5. Engineering wiring plans for projected structures to be done by the Home Lighting Bureau to assure a perfect Red Seal wired building.

Since these recommendations have been approved, work on this program will commence at once. Advertising will take the form of direct mail campaigns principally. The field man will make contacts in the building industry and the plans he secures will be turned over to the Home Lighting Bureau, who will revise them to conform with Red Seal standards.

The field man will also inspect building before completion to check wiring.

FLOODLIGHTS



GIANTS in size, but light in weight, these Kliegl reflectors are designed to illuminate large areas at a small cost. They are made of aluminum, with an everlasting reflecting surface which requires no painting, in models for one or two 1000-watt lamps, project a very bright evenly diffused light, entirely free from blinding glare, over a large area, and for a surprisingly long distance; are particularly useful for lighting auto filling stations, swimming pools and beaches, athletic fields, etc.—also for night construction work of all kinds. Write for full particulars and trade prices.

KLIEGL BROS

UNIVERSAL ELECTRIC STAGE LIGHTING CO., INC.

ESTABLISHED 1896

THEATRICAL • DECORATIVE • SPECTACULAR

LIGHTING

321 WEST 50th STREET

NEW YORK, N.Y.

Always a
Better and Faster Way
with

Wiring Devices

A complete line. Constantly improved. From one reliable source. With a background of 40 years experience.

Designed for quick and easy installation, and priced to sell at a profit for you.

Write for a copy of
our Complete
Catalog.

P & S

PASS & SEYMOUR, Inc.

Division C

SOLVAY STATION, SYRACUSE, N. Y.

New York

Philadelphia

Chicago

San Francisco

ALABAX

P & S

MODERN DESIGNS
QUALITY - - STYLE
DEPENDABILITY
COLOR

A complete line with a device suitable for every lighting requirement.

Each unit, either in white or in color, has a lustrous permanent finish. The finish will not wear off or fade.

More complete information will be gladly supplied upon request.

"Those who know the facts insist on ALABAX."

P & S

PASS & SEYMOUR, Inc.

Division C

SOLVAY STATION, SYRACUSE, N. Y.

New York

Philadelphia

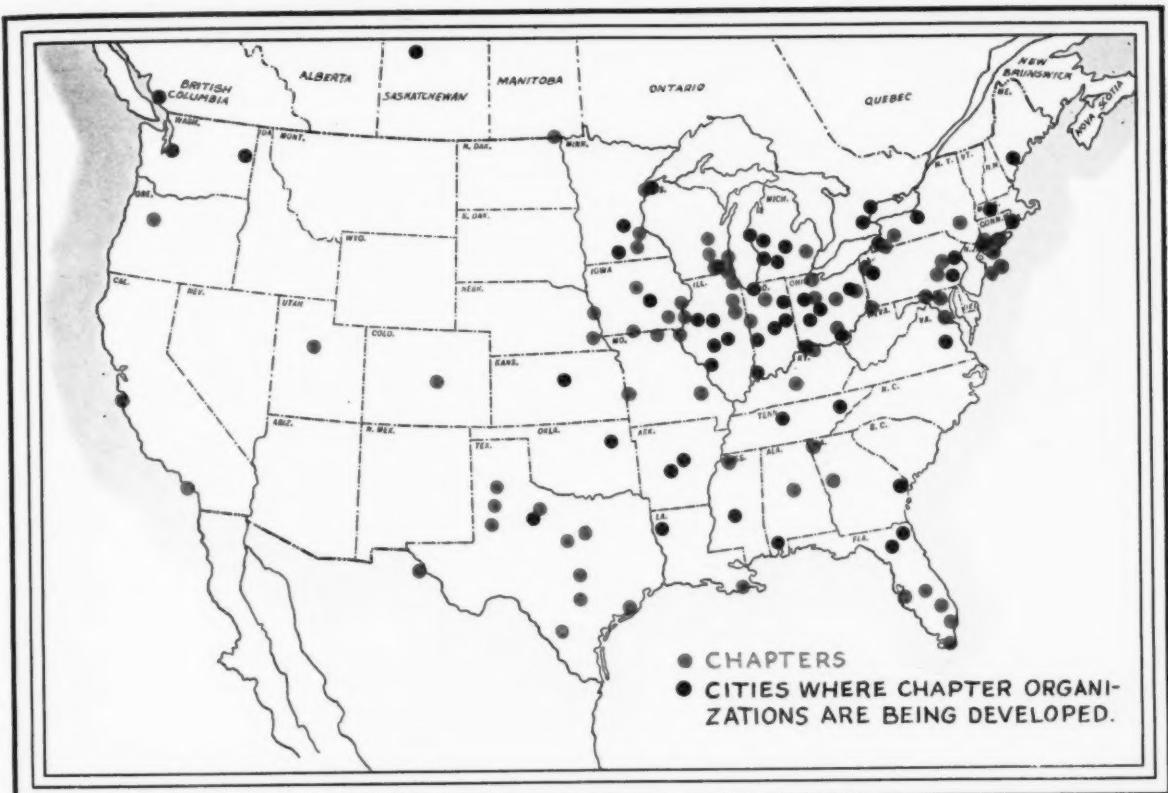
Chicago

San Francisco

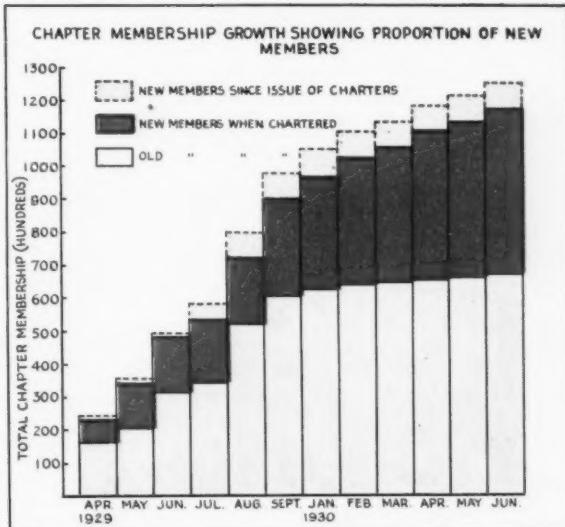
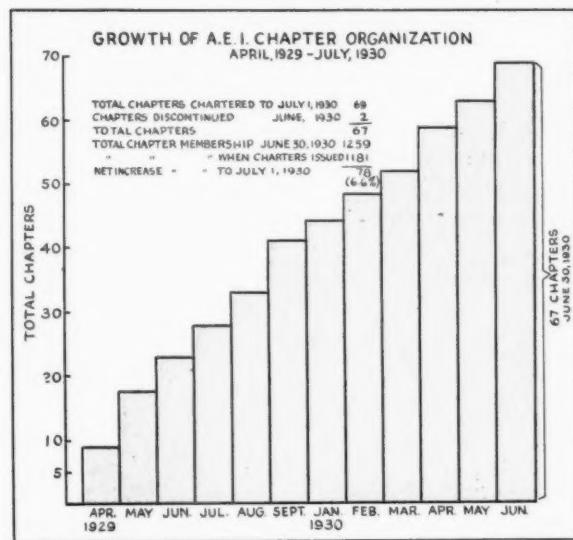
nc.

cisco

UMI



1930 Exhibit





A. E. I. Services, Activi-

What members get from the association depends largely on their knowledge of how to use the Association. Information service covering a wide variety of subjects relating to

Uniform Electrical Ordinance.

State Licensing.

State and Local Examinations and Examining Boards.

Installation Cost Data for Special Types of Construction.

Data on Illumination Design.

Methods of Estimating Rigid Conduit Installations.

Basis of Determining Margins on Special Equipment.

Construction Overhead Chargeable to Estimating.

Central Estimating—Quantity Survey Bureaus.

Use of AEI Scale for Computing Job Overhead.

Analysis of Individual Members' Operating Costs.

Wiring Symbols.

Electrical Hand-Books and Reference Publications.

Catalog Filing System.

Standard Contract Forms.

Segregation of Sub-Contracts.

Credit Standing and Reputation of Firms and Individuals.

Advice on Collecting Delinquent Accounts and Notes.

Names of Responsible Contractors in Other Localities.

Wage Rates in Other Localities.

Ordinance Requirements in Other Localities.

Remuneration of Outside Salesmen.

Method of Developing Rural Line Extension Business.

Building Contractor's Mailing List and Clientele.

What the A. E. I. is doing

BUSINESS OPERATION

Insurance

Workmen's Compensation, Employers' Liability, Public Liability and Automobile Insurance available to AEI members at attractive rates under special arrangement with Association's insurance underwriters. Statistics annually compiled of prevailing wage rates for electrical workers in more than five hundred cities and towns.

Contractual Relations

Approval of "Standard Clauses for Proposals" submitted by AEI Architects and Engineers Committee for adoption by electrical contractors as a part of all contract proposals. Review and endorsement of current "Standard Documents" of AIA for embodiment in contract proposals. Representation on Allied Construction Industries Committee investigating trade abuses in the construction industry.

Commercial Arbitration

Membership in AAA and co-operation in acquainting members of AEI with essential features of arbitration of commercial disputes. Information on procedure and assistance to individual members desiring submittal of disputes to local arbitration tribunals.

Accounting Overhead Survey

Electragist Standard Accounting System and accounting forms furnished AEI members at special rates. Annual "Survey of Cost of Doing Business" for electrical contractors and dealers compiled from detailed reports submitted by members for preceding year.

ENGINEERING AND TECHNICAL DATA

Electragist Data Book

Available to AEI members. Contains in compact form a large variety of technical data and information, including condensed estimating tables, for convenient daily reference in computing, estimating and designing layouts.

New Construction Methods Estimating

AEI Architects and Engineers Committee investigation of new trends in structural design of floors in large buildings. Proposed survey of new types of construction affecting electrical installation methods. Electragist Estimating Manual, containing full explanation of Electragist System of Estimating with illustrations of use of standard forms, and complete revised estimating tables. The Manual has been offered to accredited engineering colleges for a text-book in electrical estimating courses. Standard estimating forms available to members at special rates.

Cost Data

AEI Cost Data Committee collects and compiles cost data on various classes of work. Investigation in progress of wiring costs for electric ranges and other heavy-duty domestic appliances requiring special wiring.

STANDARDIZATION

Electragist Standards for Wiring Installations Standard Symbols

An authoritative guide to best practice in designing wiring installations and preparing specifications. For use by electrical contractors, engineers and architects. Recently distributed to representatives of all chapters of the AIA.

Joint sponsorship with AIEE and AIA in current revision of "Standard Symbols for Wiring Plans" under ASA procedure. Also joint sponsor, as ASA co-operating body, for "Standard Symbols for Electrical Equipment of Buildings."

Definition of Technical Terms

Representation with AIEE on ASA Sectional Committee for "Definitions of Technical Terms Used in Electrical Engineering, Including Correlation of Definitions and Terms in Existing Standards." Submittal of definitions embodied in Electragist Standards for Wiring.

Standard Filing System Underwriters' Laboratories Standards

Joint Development and revision with AIA and NEMA of Electrical Section of Standard AIA Filing System for Catalogues. Filing classification and Index furnished to AEI members.

Standardization of Materials

Submittal for AEI assent, under ASA procedure, of all standards proposed by Underwriters' Laboratories, Inc., as proprietary sponsor for "Specifications and Standards for Electrical Devices and Materials."

Inauguration of movement for standardization of electrical construction materials to eliminate unnecessary duplication of stocks and reduce manufacturing costs on standard materials.

ties and Affiliations

business and technical problems is available to individual members. The following is a partial list of subjects typical of inquiries received from members during the past year.



Determination of Charges for Industrial Maintenance.
Installation, Service and Repair of Neon Gas Signs.
Layout for Electrical Merchandising Store.
Employee Bonus Systems and Group Insurance.
Compensation and Liability Insurance.
The Five-Day Week in the Electrical Construction Industry.
Group Bonding of Members.
Commercial Arbitration.
Electrical Appliances for Commercial Use in Restaurants.
Locating Manufacturers of Special Equipment and Tools.
Technical Advice on Specific Products.
Specifications and Characteristics of Electrical Devices.

New Methods and New Types of Wiring Being Advocated.
Information and Samples of AEI Standard Forms.
Trade Policies of Other Electrical Industry Groups.
Legislation Relating to Utility Merchandising Policies.
Suggested Drafts of Constitution and By-Laws for Local Chapters and Associations.
Requests for Suggested Speakers for Local Meetings.
Requests for Source Material of Member Addresses.
Requests for Co-operation in Planning Meeting Programs.
Advertising and Publicity—Individual and Co-operative.
Requests for Private Conferences with AEI Officers, Committee men and Staff Representatives.

for Individual Members

LEGISLATION

Arbitration Collaboration with AAA to promote adoption of Draft State Arbitration Act by state legislation.
Mechanics' Lien Law Contact with U. S. Department of Commerce, Standard State Mechanics' Lien Act Committee, in development of Draft Uniform Mechanics' Lien Act.
Resale Price Act Endorsement and co-ordinated Chapter support to secure passage of Capper-Kelly Bill.

TRADE POLICY AND DISTRIBUTION

Wholesale Distribution "Joint study with NEWA of wholesale distribution problems. AEI recommendations for cooperation by Electragist Chapters with local jobbers in study of distribution policies and classification of customers.
Trade Practice Conference Proposed adoption of rules of fair practice for self-regulation of the electrical contracting industry under Trade Practice Conference procedure of the Federal Trade Commission.
Credit Control Co-operation with NACM and NEWA in developing a practical plan to secure effective adherence in the electrical industry to sound principles of credit extension.
Motor Distribution Joint conferences of NEMA and AEI Joint Committees on Motor Merchandising for study of sales policies and distribution problems affecting motors, power apparatus and control equipment.
Merchandising AEI Central Stations Relations Committee contact with NELA to advance harmonious trade relations between power companies and electrical dealers.
Census of Distribution Co-operation with U. S. Department of Commerce, Bureau of Industry Census, in preparation of questionnaire for electrical distribution.

MARKET DEVELOPMENT

Adequate Wiring Collaboration with NELA in preparation and distribution of "Minimum Specifications for Adequate Wiring for Lighting in Commercial and Public Structures."
Electrical Modernization Promulgation of Electrical Modernization of Industries movement through national Motor Section and local Chapters.
Industry Promotional Work Representation on SED Board of Directors and Advisory Committees on Wiring Promotion (Red Seal Plan and Franklin Specifications), League and Field Work, publicity and Advertising Service.
Special Activities Representation on national industry committees on All-Year-Decorative-Lighting and Co-ordination of Industry Lighting Promotion Activities.
NELA Contacts Contractor member of NELA Board of Directors chosen from Electragist group.

CODES AND ORDINANCES

National Electrical Code AEI has membership on Electrical Committee of NFPA and on Correlating and Article Committees of Electrical Committee. Representation as co-operating body of ASA in development of standards proposed for "Electric Wiring and Apparatus in relation to Fire Hazard."
Safety Code Representation as co-operating body of ASA.
Inspector Contact Co-operating membership in IAEI and associate membership in IAME.
Uniform Ordinance Licensing Representation on SED Advisory Committee on Uniform Ordinance Work.
Approval of provisions for Draft State Licensing Act. Collaboration with NEMA Law and Legislative Committee and SED Uniform Ordinance Department in subsequent revisions. Co-operation with Chapters and members requesting assistance in preparing suitable local licensing provisions.

ABBREVIATIONS

AAA—American Arbitration Association
AIA—American Institute of Architects
AIEE—American Institute of Electrical Engineers
ASA—American Standards Association
IAEI—International Association of Electrical Inspectors
IAME—International Association of Municipal Electricians

NACM—National Association of Credit Men
NELA—National Electric Light Association
NEMA—National Electrical Manufacturers Association
NEWA—National Electrical Wholesalers Association
NFPA—National Fire Protection Association
SED—Society for Electrical Development

**A. E. I. Membership Classification
by Population of Cities**

CITIES HAVING POPULATION	Number of Cities Represented							Total Active Mem- bership
		E	C	D	R	M	F	
Under 25,000	314	347	79	2	255	109	322	436
25,000 to 50,000	82	135	43	3	96	47	110	193
50,000 to 100,000	65	141	53	4	108	53	115	203
100,000 to 500,000	68	335	257	7	230	153	269	607
Over 500,000	17	180	324	2	144	143	143	537
	546	1138	756	18	833	505	959	1976
Associate Members							64	
Honorary Members							9	
Total Membership							2049	
CLASSIFICATION OF BUSINESS	NO. OF MEMBERS	PERCENTAGE OF ACTIVE MEMBERSHIP						
E—Contractor-Dealers with Retail Stores	1138	57.6%						
C—Doing Contracting Only	756	38.3%						
D—Merchandising Only	18	.9%						
R—Specializing in Residence Wiring	833	42.2%						
M—Motor Specialists	505	25.6%						
F—Displaying Lighting Fixtures	959	48.5%						

WHAT ELECTRAGISTS DO

Outdoor Construction

Airport Lighting; Rural Line Extensions; Farm Electrification; Marine Wiring; Oil Fields; Playgrounds; Flood-Lighting; Street and Highway Lighting; Outdoor Decorative Lighting; Fire-Alarm Systems; Signalling Systems.

Industrial Installation

Factory Power and Lighting Motors and Control Apparatus; Electric Heat Applications; Elevators; Conveyors; Ventilation; Refrigeration; Automatic Electronic Control.

Large Construction (New Bldgs.)

Complete Installations for Lighting, Power, Control and Communication Hotels; Apartments; Office Buildings; Banks; Churches; Auditoriums; Hospitals; Schools; Theatres (including talking moving pictures); Government Buildings.

Commercial Work

Complete Installations, Re-wiring and Alterations for: Stores; Restaurants; Salesrooms; Markets; Garages; Filling Stations; Showcase and Window Lighting; Signs (Sign Maintenance); Ventilation; Refrigeration; Medical and Dental Apparatus; Office Machines.

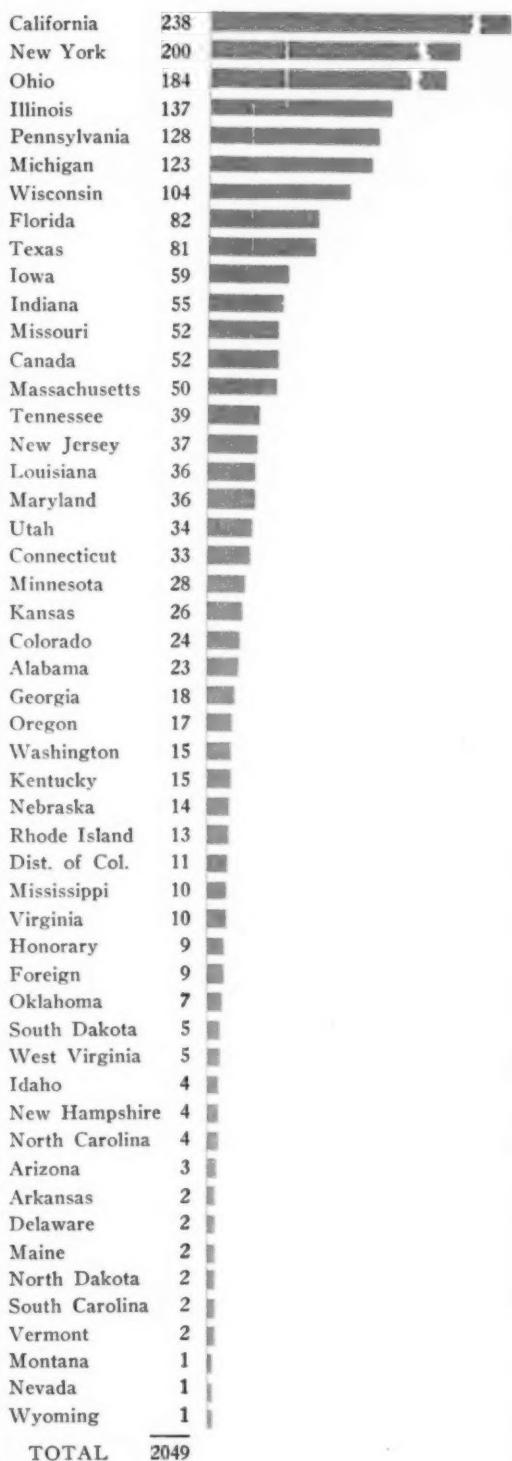
Domestic Electrification

Wiring and Equipment for: Apartments; Large Residences; Smaller Residences; Re-wiring for Adequacy; Ranges; Refrigerators; Water-Heaters; Air-Heaters; Laundry Equipment; Radio; Oil-Burners; Ventilation; Interior Telephones; Bells and Annunciators; Special Control Wiring; Garden Flood-Lighting; Decorative Lighting for Holidays and Entertainments.

Miscellaneous

Lighting Fixtures; Appliance Repairs; Special Low Tension Systems; Electrical Novelties.

A. E. I. MEMBERSHIP LIST BY STATES



On the next
three Pages

You will see a lot of
Photographs and Facts
that are of direct interest
to YOU

about

SQUARE D

ELECTRICAL



EQUIPMENT

You KNOW SQUARE D's Complete
Line . . . It will pay you to Stock It!
Turn this page and Read what
other Contractors Say!—

You'll see the Milwaukee contractors Who are quoted here



Here you see "Jack" Surges, of the Surges Electric Co., Milwaukee, who has used SQUARE D equipment ever since he started in business. Mr. Surges says, "I always recommend SQUARE D on all industrial jobs." He also states that the SQUARE D reputation and the genuine service given by SQUARE D products have been of value to him in his work. He praises the assistance rendered to him by the SQUARE D representative in the Milwaukee territory.

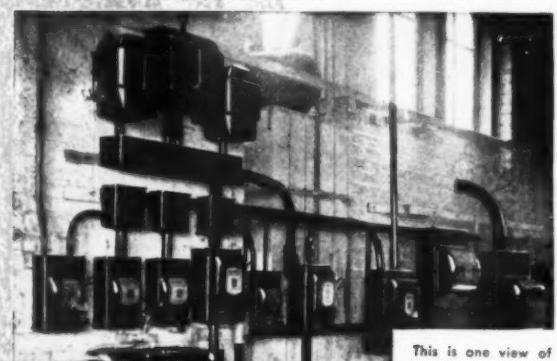


*ASK them how
ALL SQUARE D*

There is no better proof of the quality and performance of any electrical equipment than the enthusiastic approval of the men whose business it is to recommend and install this equipment, every day. The praise of these Milwaukee contractors is, therefore, greatly appreciated by Square D. It is typical of the opinion of many hundreds of contractors, all over the country.



This is a photograph of shelves in the store-room of the A. C. Electric Co., Milwaukee, showing the complete SQUARE D stock which this company carries at all times. F. J. Schermerhorn, President of this company, is thoroughly "sold" on the value of carrying a large stock of SQUARE D switches and recommends that all contractors do this. He says, "We are able to give unusually prompt service on jobs where switch trouble is the cause, because we have a stock sufficient to handle emergency replacement of almost any type of switch which we have regularly used." Mr. Schermerhorn's company recently made a fine installation at the George Smith Steel Casting Co., Milwaukee.



Headquarters of the Surges Electric Co., Milwaukee—also headquarters for the installation of a lot of SQUARE D equipment.

This is one view of one of "Jack" Surges' big jobs. It is a safety switch installation in the plant of the Western States Envelope Co. Over 300 SQUARE D switches were used in this plant.

BRANCH

Atlanta	Dallas
Baltimore	Davenport
Boston	Denver
Buffalo	Detroit
Chicago	Grand Rapids
Cincinnati	Houston
Cleveland	Indianapolis

SQUARE D

ELECTRICAL

The **SQUARE D** Line is COMPLETE

SWITCH AND PANELBOARD DIVISION, DETROIT

Industrial Safety Switches

Meter Service Switches

SQUARE-Duct (the rigid suspension method for wiring)

Panelboards for Both Lighting and

Power

Fuse Cabinets

Other Meters
Hoist Test
Kerosene B.

INDUSTRIAL CONTROLLER DI

Automatic Str

Compensat

Metric Cont

UMI

Milwaukee Contractors here, at the Convention how well they like SQUARE D Equipment

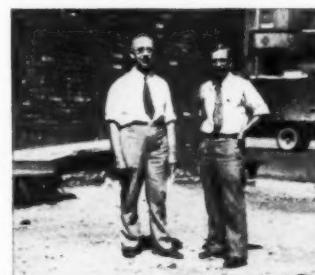
No doubt you, too, have had experience with the Square D products—and know that they are reliable and always embody the newest features of design and construction. Square D has meant "the best" for twenty years—when you install Square D products, the Square D reputation insures your being right.



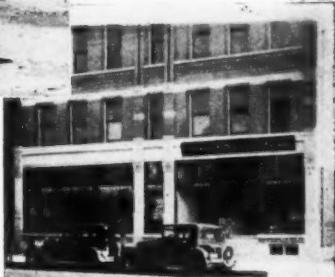
Gentlemen, meet Mr. Schultz, of Schultz and Fuhr, Inc., Electrical Contracting Engineers of Milwaukee. Mr. Schultz says, "We prefer to use Square D switches for all jobs, because we know they will give absolute satisfaction."



From this building Messrs. Schultz and Fuhr direct their many installations. In a good percentage of them, SQUARE D plays a prominent part.



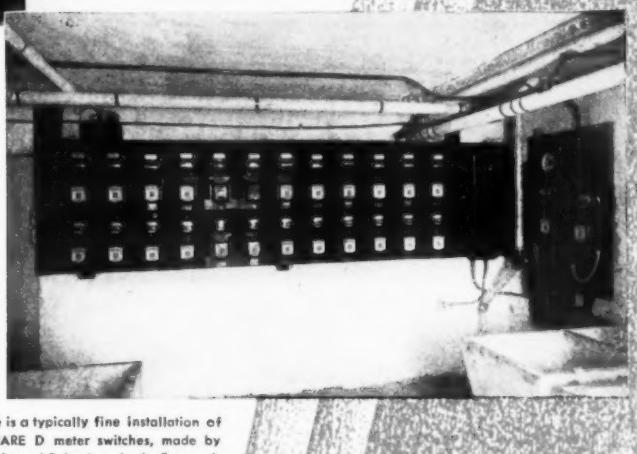
Below is the office and plant of the Trester Service Electric Co., Milwaukee. They're equipped to handle all jobs efficiently.



Above are H. F. Trester (on the left), President, and L. G. Boisclair, Secretary, of the Trester Service Electric Co., Milwaukee. These gentlemen are SQUARE D boosters and use SQUARE D products on every job where it is at all possible. They praise especially the rugged construction of the contacts and blades of SQUARE D safety switches.



Over 100 SQUARE D safety switches were used in the foundry of the Crucible Steel Casting Co., Milwaukee, which is pictured here. This installation is a standardized SQUARE D job—one of the best made by the Trester Service Electric Co. All of the SQUARE D switches on this job have been in operation long enough to prove their absolute dependability.



Here is a typically fine installation of SQUARE D meter switches, made by Schultz and Fuhr, Inc., in the Roosevelt Manor Apartment Building, Milwaukee.

SQUARE D

EQUIPMENT

OFFICES

Kansas City	Pittsburgh
Little Rock	Portland
Los Angeles	Richmond
Milwaukee	San Francisco
Minneapolis	Seattle
New York	St. Louis
Philadelphia	Syracuse
	Washington

COMPLETE and Thoroughly DEPENDABLE

Over Meter Boxes
Range Testers
Merger Breakers
INDUSTRIAL CONTROLLER DIVISION, MILWAUKEE
Magnetic Starters
Commutation Starters
Compensators
Magnetic Contactors

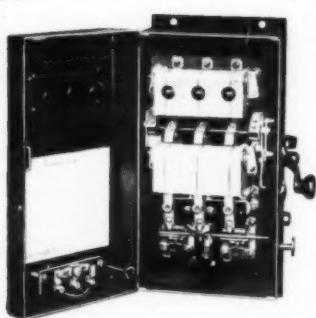
Resistors
Pressure Switches
Vacuum Switches
Float Switches
SPECIALTY DIVISION, PERU, INDIANA
Special Electrical Devices
Special Porcelain Products
Porcelain Insulators

A Cordial Invitation is Extended to All Contractors to Visit the Plant of SQUARE D's Industrial Controller Division—Right Here in Milwaukee. We'll Give You a Royal Welcome—and Keep You Interested Every Minute!

Nothing would give us greater pleasure than to be permitted to welcome every contractor who is attending the Convention of the Association of Electragists, International, to our plant. We want to show you everything SQUARE D is doing at its Industrial Controller Division—and to help you

get a better idea of the size and importance of the SQUARE D Company. We want you to know that the SQUARE D line is COMPLETE and can help you on almost every industrial and domestic installation. Remember, the SQUARE D reputation protects you on every job.

At its Milwaukee Plant SQUARE D Manufactures This COMPLETE LINE of Motor Control Equipment:

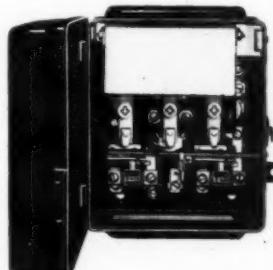


Open view of Class 8532 combination starter (automatic, across-the-line starter and motor circuit switch in one compact cabinet), type A, without fuses. SQUARE D (I-C) combination starters are also obtainable, fused and with test jack attachment.

Industrial Controller Division,
Milwaukee

-
- Automatic Starters
- Combination Starters
- Compensators
- Magnetic Contactors
- Resistors
- Pressure Switches
- Vacuum Switches
- Float Switches

This is an open view of SQUARE D (I-C) Class 8532, type B automatic across-the-line starter. Class 8532 is available in three types and can be profitably installed to control motors up to 5 h.p. at 220v., or 7½ h.p. at 440v.-550v.



(183)

SQUARE D COMPANY, DETROIT, U. S. A.

Factories at: Detroit, Mich., Peru, Ind., and Milwaukee, Wis.
SQUARE D COMPANY, CANADA, LTD., WALKERVILLE, ONTARIO

BRANCH OFFICES: Toronto, Montreal

SQUARE D

CONTROL

EQUIPMENT

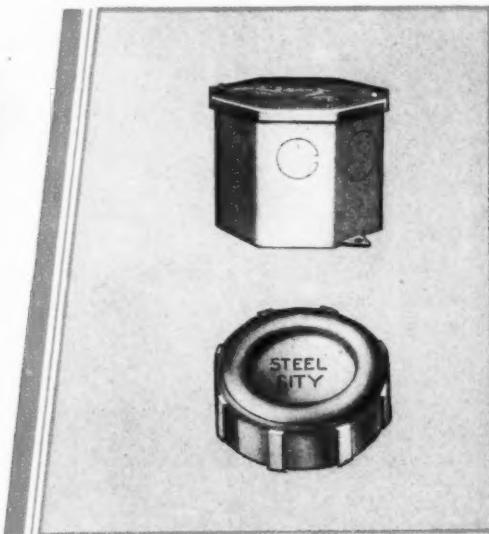




ADOPTING
the right line means
GREATER PROFITS
for you

You're safe when you select Steel City products! Safe—because this quality line is backed by more than 30 years of successful manufacturing, research and experimenting.

Most practical for neater and safer electrical installations, Steel City products mean GREATER PROFITS for you. It will pay you to write us today for our catalog.



STEEL CITY ELECTRIC COMPANY
PITTSBURGH **PENNA.**

Why
(Patented)
Skin
Wires

KELLEMS PRODUCTS INC.—6 Varick Street, New York, makers of



Get a Grip

KELLEMS JR. GRIPS

Distributed
Nationally
through
General Electric
and
Westinghouse

Kellems Products, Inc.,
6 Varick St., New York City.

Please send one Kellems Junior Grip for two to
five No. 14 wires—same as saved 15,000 feet No.
14 on Chrysler Building. Will pay \$1.75 on
delivery.

KNOX

Never a Comeback! with KNOX Products

Seven years of successful manufacturing, designing and experimenting have resulted in a most complete line of quality porcelain products. Only the best grade of porcelain goes into a **KNOX** Product—that's the reason your customers will always be satisfied with **KNOX** Installations. Write us today for catalog describing our complete line of porcelain and bakelite specialties.

Safety Assured!

MANUFACTURED BY
KNOX PORCELAIN CORPORATION
KNOXVILLE, TENN.

*Certified
by*

NEW MARKETS

Constantly Developed

BENJAMIN

**for Contractors
Specializing in
Floodlighting**

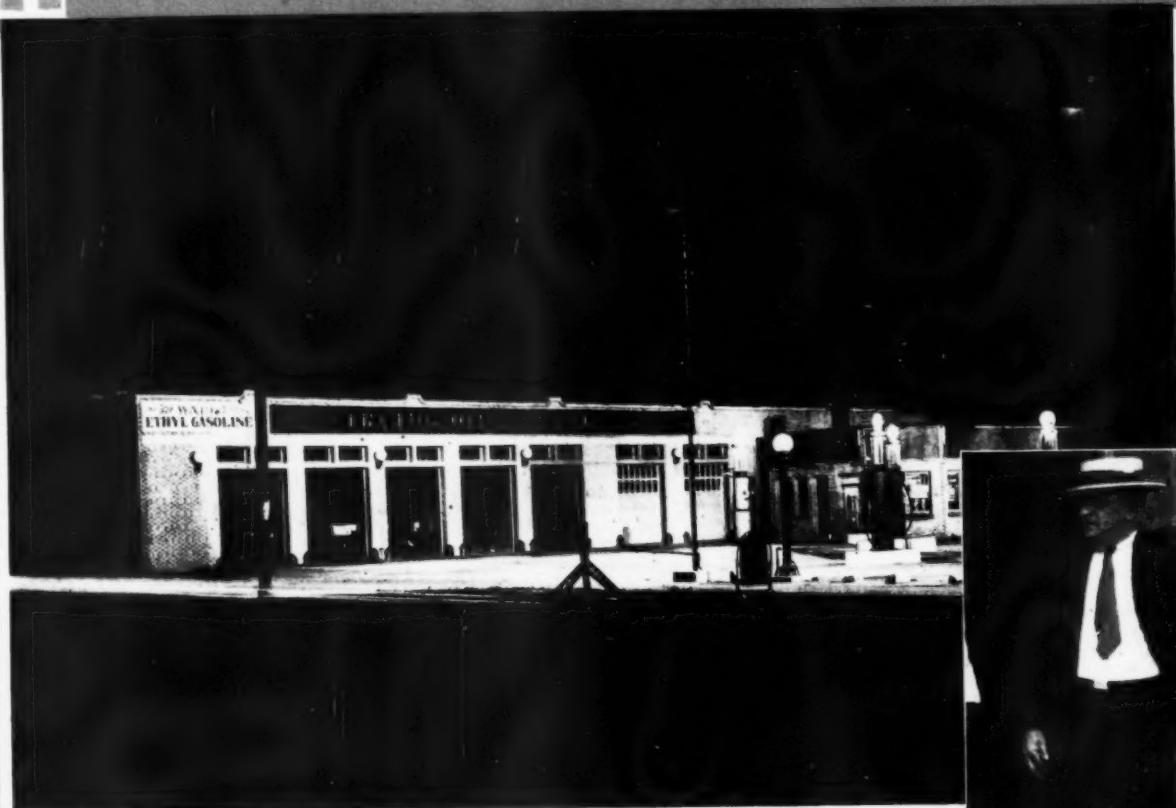
**THE NEW
BENJAMIN
DUO-SERVICE
Floodlight**



MONEY MAKING INSTALLATIONS

Floodlighting Jobs

SERVICE STATION LIGHTING



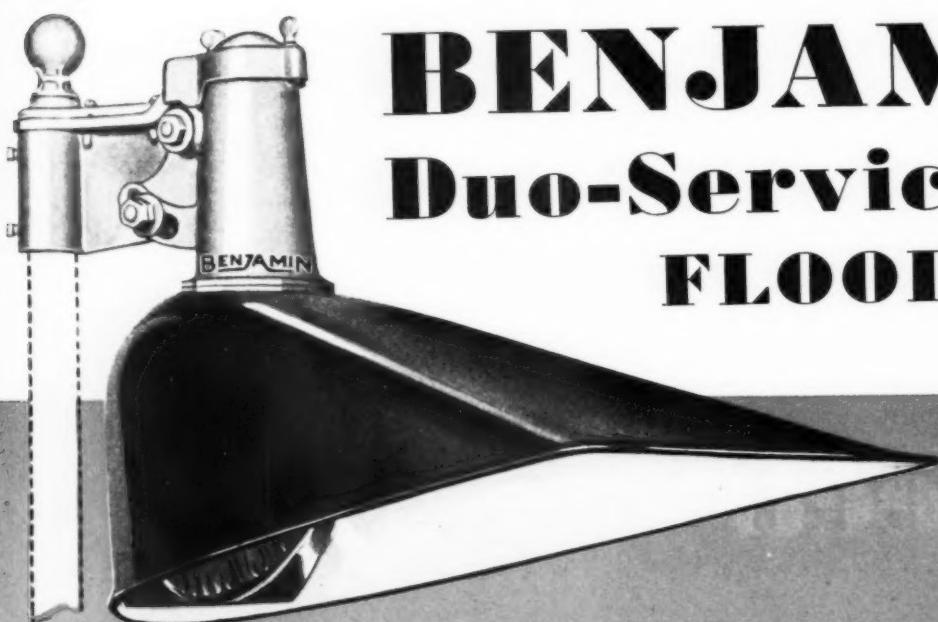
Floodlighting
a Gasoline
Service Sta-
tion with
Duo-Servic
Floodlights

George Eis-
man, of Eis-
man & Son
Electric
Contractors,
points with
pride to his
Duo-Servic
Floodlight



THIS CONTRACTOR
RECOMMENDS

BENJAMIN
Duo-Service
FLOODLIGHTS



Benja
General

New York: 247-1717

Everywhere Easily Installed

A Combination Floodlighting Projector and Diffusing Reflector

A special highly polished metal projector of high reflecting value, utilizing a portion of the light from a 1000-watt clear Mazda lamp, produces a flood-lighting beam of about 25,000 candles that will center attention on the object or area to be emphasized. The balance of the light from the lamp is used for general illumination of the surrounding area by the diffusing reflector.

Auto Parking Grounds, Dancing Pavilions,

Gardens and Parks, Beaches,

Golf Driving Ranges, Archery Ranges,

Coal and Material Handling Yards

are Profitable Floodlighting Jobs.

No matter where you look, you will find jobs just made for the Duo-Service Floodlight. And they make the jobs, just as they are made for the job. Easily sold. Easily installed. The most important business builder and profit-maker the contractor has ever had.



Benjamin Electric Mfg. Co.

General Offices and Factory: DES PLAINES (Chicago Suburb) ILL.

Divisional Offices and Warehouses:

7 W. 17th St. Chicago: 111 No. Canal St. San Francisco: 448 Bryant St.

Certified
by
BENJAMIN



For the lighting
of Parking Areas
around Dancing
Pavilions.

Ideal for Used Car
Lots.

The New Benjamin DIFFUSING FLOODLIGHT

for the
Lighting of
Playgrounds,
Miniature Golf Courses
Yards and Other
Outdoor Areas

Gives an unusually broad and deep spread of light. Especially designed for the uniform and economical lighting of relatively large ground areas.

Neat and inconspicuous on the pole.

Porcelain enamel, weather-resisting; does not tarnish nor discolor.

Easily kept clean and maintains indefinitely its high lighting efficiency.

Easily wired and installed. Adjustable, laterally and vertically, for maximum coverage of various areas.

Miniature
Golf Course
lighted with
8 Benjamin
Diffusing
Floodlights

Miniature
Golf Course
lighted with
6 Benjamin
Diffusing
Floodlights

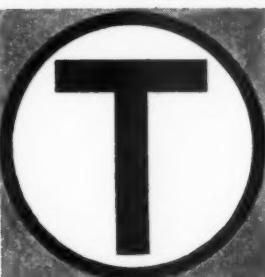


Benjamin Electric Mfg. Co.

General Offices and Factory
DES PLAINES, (Chicago Suburb) ILLINOIS

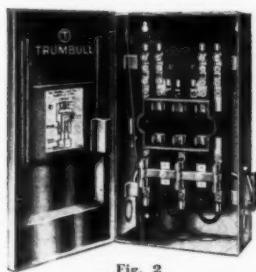
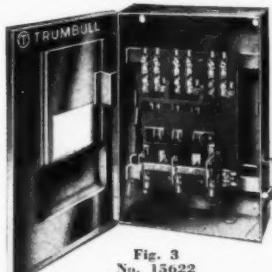
Divisional Offices and Warehouses
247 W. 17th Street 111 No. Canal Street 448 Bryant Street
New York Chicago San Francisco

The Benjamin
DIFFUSING FLOODLIGHT



TRUMBULL

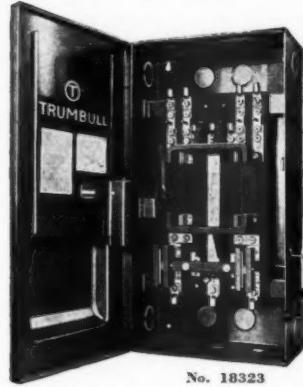
METER SERVICE and ENTRANCE SWITCHES

Fig. 1
No. 15322Fig. 2
No. 15322Fig. 3
No. 15622
Neutral StrapFig. 4
No. 15325

TRUMBULL Polyphase Meter Service and Entrance Switches are designed so fuses and blades are "dead" when switch is open. . . . Bases are of slate—contacts are of double break blade construction with blades operated from back of slate. Line terminals are at the bottom and all connections are at the front and straight through to meter.

Meter testing facilities are provided above the switch in an easily accessible location. Unusual switch construction greatly reduces the switch size. . . . Breaking capacity is high on this double break type switch. Accessible fuses are equipped with an interlocking device so that the fuse compartment cannot be opened until the switch is pulled "off".

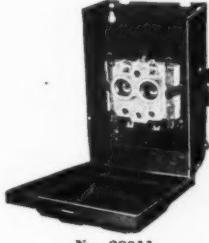
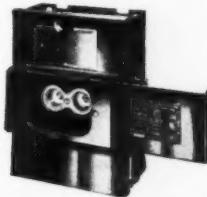
Boxes Equipped with Shutters for Use with Bottom Connected Standardized Meters



No. 18323

WITH ACCESSIBLE
OR SEALABLE
SERVICE SIDE FUSES.

No. 18323 (illustrated) is accessible type for cartridge fuses—three wire service. . . . With test blades. Switch may be locked "on" or "off". All switches above 30 amp. are on slate base. Also supplied in non-testing types.

With Ganging Twistouts
For 2 or 3-Wire Service
No. 28311No. 18311 (illustrated)
is of the accessible type
for plug fuses—2 wire
service. . . . With test
blades. Also supplied in
non-testing types.

SOLD THROUGH WHOLESALERS

THE TRUMBULL ELECTRIC MFG. COMPANY

Plainville, Conn.

BRANCH PANEL BOARD AND SWITCH BOARD FACTORY AT
LUDEON, KENTUCKY.

Branch Factories—Switches, Switchboards and Panelboards:
A. G. Electric Mfg. Co. Division
LOS ANGELES, CALIF. SEATTLE, WASH.

BOSTON
1002 Statler Bldg.

SAN FRANCISCO
432 Fourth St.

PHILADELPHIA
511-519 N. Broad St.

NEW YORK
803 Lincoln Bldg.

CHICAGO
2001 W. Pershing Rd.
DETROIT BRANCH
415 Brainerd St.

ATLANTA

A GENERAL ELECTRIC ORGANIZATION

CONFIDENCE *first...*

then comes success

CONFIDENCE is a vital requisite in selling any contract. Buyers are professionally suspicious—it is sound business sense. The material you propose to install plus your own reputation for conscientious workmanship . . . go hand in hand in breaking through their suspicion and getting the contract.

The right line of Safety Switches is a line which your prospect already trusts; it transfers the buyer's confidence in the Line to you.

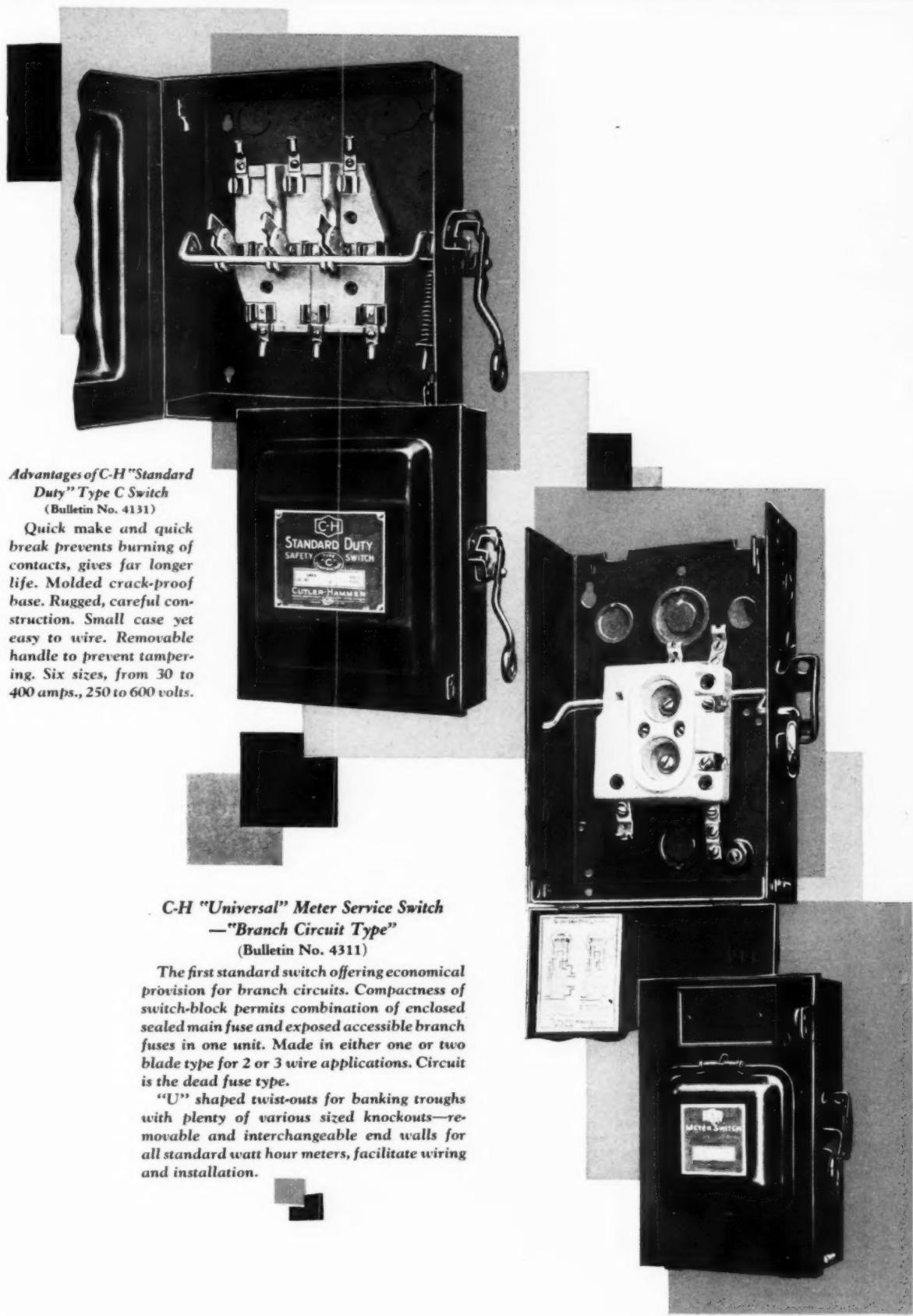
The Cutler-Hammer Line of Safety Switches is widely known and trusted. Each C-H Switch has many exclusive features to help you sell . . . features assuring performance to your credit year after year, constantly increasing your chance for future business.

The Cutler-Hammer Line of Safety Switches includes a switch for every class of service. They are carried by established wholesalers and are fully described in the C-H Safety Switch Catalog. Shall we mail you a copy?

CUTLER-HAMMER, Inc.
Pioneer Manufacturers of Electric Control Apparatus
1307 St. Paul Avenue
MILWAUKEE • WISCONSIN

CUTLER HAMMER

High Quality Safety Switches For Every Service



(A-372)

*Advantages of C-H "Standard Duty" Type C Switch
(Bulletin No. 4131)*

Quick make and quick break prevents burning of contacts, gives far longer life. Molded crack-proof base. Rugged, careful construction. Small case yet easy to wire. Removable handle to prevent tampering. Six sizes, from 30 to 400 amps., 250 to 600 volts.

*C-H "Universal" Meter Service Switch
—"Branch Circuit Type"
(Bulletin No. 4311)*

The first standard switch offering economical provision for branch circuits. Compactness of switch-block permits combination of enclosed sealed main fuse and exposed accessible branch fuses in one unit. Made in either one or two blade type for 2 or 3 wire applications. Circuit is the dead fuse type.

"U" shaped twist-outs for banking troughs with plenty of various sized knockouts—removable and interchangeable end walls for all standard watt hour meters, facilitate wiring and installation.

"Our Customers Advice On

**Blackall and Baldwin Company,
40-Year-Old New York Firm
of Electrical Contractors, Says
... Complete Wiring Means
Satisfied Customers ...**



A. S. Adams
President

A Few Blackall and Baldwin Company Installations

The Advertising Club of New York City; Salvation Army Territorial Headquarters, New York City; Bible Institute, New York City; St. Marks Hospital, New York City; Residence of Arthur Curtiss James and other residences; Y. M. C. A.'s; churches; apartments; industrial plants, etc.

40 years of electrical service in New York with the personnel unchanged, barring deaths—such is the remarkable record of Blackall and Baldwin Company. What better recognition could there be of the high standards of business ethics practiced by a firm both within as well as without the organization?

"OUR experience has been that customers do not realize all of their own needs so far as wiring plans are concerned", says Mr. A. S. Adams, president of Blackall and Baldwin Company, "and for that reason we make an extra effort to sit in when wiring plans are being discussed. This little aggressive 'help' on our part saves the client more than he may realize—removes the necessity for correcting mistakes *after* the wiring has been installed. It saves, for example, the trouble of adding convenience outlets where they have been omitted.

"It is only natural that our customers have discovered that our 'extra help' has given them a better job of wiring than they would otherwise have had. Many of our customers have come back over a long period of time to get our advice on complete wiring. Even architects and engineers drop in to confer with us on wiring plans. We have found that it *pays* to be aggressive in helping the customer help himself.

"Equally important to a successful installation," continues Mr. A. S. Adams, "is the selection of the best quality wiring materials for the job. All of our departments have instructions to see that only the highest grade of wiring materials are used. This results in lasting satisfaction on the part of the client. He never has to worry about his wiring once it is installed. In this connection, we also maintain a service department to take care of any necessary repairs to residences or other buildings. This little added attention pleases the client. We find that always thinking first

Come Back for Our Complete Wiring . . .

of our customer—by giving him *complete* wiring plans, better wiring and additional service—naturally makes him think *first* of us when he thinks of wiring".

For over forty years Blackall and Baldwin Company have been thinking first of the customer—giving their clients the benefit of their varied experience in wiring many of the finest homes, hospitals and public buildings in and about New York City. Like many other leading electrical contractors, Blackall and Baldwin Company use Cutler-Hammer Wiring Devices. Here, in a *complete* line, they find a wiring device for every purpose—every device backed by the guarantee of Cutler-Hammer's thirty years of experience in the making of electrical equipment. Specify Cutler-Hammer on your next job—on *every* job. Your installations deserve the protection of Cutler-Hammer quality.

CUTLER-HAMMER, Inc.
Pioneer Manufacturers of Electrical Apparatus
 1258 St. Paul Avenue
 MILWAUKEE, WISCONSIN



C-H Toggle Type Surface Switch has a beautiful Thermoplastic cold-moulded base, cap of polished nickel, and a black composition operating lever which indicates whether current is on or off. Made in single pole, double pole, 3-way and 4-way types. Approved by the Underwriters.



C-H Catalog 7920 Duplex Receptacles (black or brown) are small and shallow—designed for easy handling and quick wiring. Parallel slots are polarized. Contacts are heavy one-piece phosphor bronze, doubled to insure firm contact at all times regardless of length of service and to prevent stubbing. (Cat. 7910 single is same construction.) Approved by the Underwriters.



Howard D. Black
 Vice-President



Thomas F. Hylan
 Secretary



C-H Automatic Door Switch is especially convenient for lighting closets. Light turned on automatically when door is opened. Furnished in two types—with approved box for Loom, "BX" or Non-metallic, sheathed cable—or without box, but to fit any standard switch box, for rigid conduit work. Approved by the Underwriters.

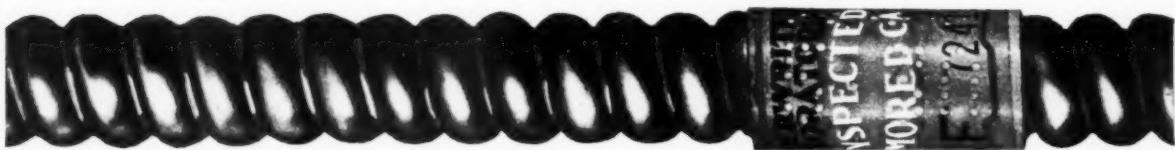
CUTLER HAMMER

MODERN WIRING  NECESSITIES

(A-304)

THE NEW Armored Collared Cable

with the Easily Applied Fiber Collar



Approved by Underwriters' Laboratories



THE COMPLETE LINE of Armored Collared Cables introduced by PARANITE not only gives the trade a new product of traditional PARANITE quality, but an armored cable which can be worked with greater speed, greater convenience and greater safety.

The newly developed Paranite Fiber Collar supplied with all Paranite Armored Cable provides positive protection for conductors and paper where



they emerge from the conduit. Every length of Paranite Armored Cable carries the label of the Underwriters' Laboratories.

Because of the simplicity of the Paranite Fiber Collar, it can be quickly, certainly and easily applied by workmen. It does not have to be twisted on.

A new paper-impregnating compound employed in the manufacture of Paranite Armored Cables represents a distinct advance. This compound is so resistant to the effect of outside elements that it



affords permanent assurance against unraveling of the paper—gives added proof against moisture—and serves as additional insulation.

The complete line of Paranite Armored Collared Cables, Flexible Steel Conduit, Armored Leaded Cables and Armored Lamp Cords is now available to the trade. Write for full information.



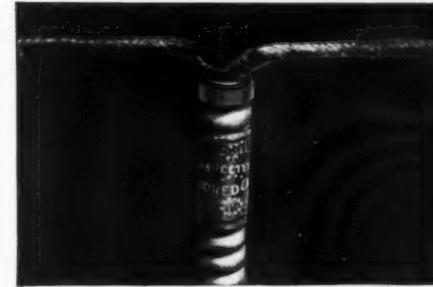
• EASILY STRIPPED...

Paper is easily stripped simply by pulling the two conductors apart.



• SAFETY FOR WORKMEN

No more cut thumbs from jagged cable ends. Collar fits over end of cable—does not twist on.



• ADDITIONAL INSULATION

When conductors are pulled apart paper does not unravel and fall away; it clings to the conductors, affording additional insulation and protection.

PARANITE

"If It's PARANITE It's Right"

INSULATED WIRE and CABLES

INDIANA RUBBER AND INSULATED WIRE CO., JONESBORO, INDIANA



Greetings, Electragists



We extend our best wishes for a pleasant and successful convention.

Use "RACO" Boxes, Hangers and Box Fittings for better and more economical installations.

Modern and correct in design, and best working qualities.



MS. Switch Box with cable clamps and corner pri-outs, 1 1/2" deep.

MS-X. Same as above, with extended ears for new work.



DO-15. 4" Oct. Box, 1 1/2" deep, with 1/2" and cable pri-outs. Equipped with 2-way bushed clamps and fixture stud.

DO-15N. Same as DO-15, except without stud.

SU-15. Same as above, assembled on deep offset hanger.

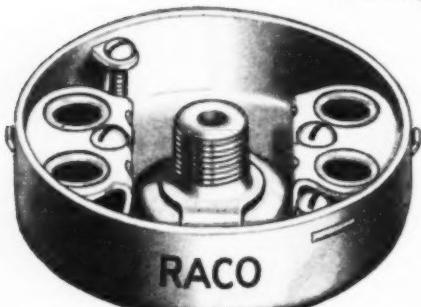


MF. Wall Bracket Box, same as MS, except with adjustable sliding stud. 1 1/2" deep.

RF. 2" deep box with 1/2" pri-outs, otherwise same as MF.



SU-13. Set-up Box, 3 1/2" round, 1 1/2" deep, Box with cable clamps, same as DO-13N. Assembled on shallow offset hanger.



DO-11. 3 1/2" Round Box, 3/4" deep with cable clamps and fixture stud.

DO-11N. Same, without stud.

SU-11. Same, assembled on straight bar hanger.



825. Concrete Box with plain or studded square plates. All depths. Note solid nail ears and tight fit.



DO-13. 3 1/2" Round Box, 1 1/2" deep with 2-way bushed clamps and fixture stud.

DO-13N. Same, without stud.

And All Equipped With "RACO" Pri-Outs

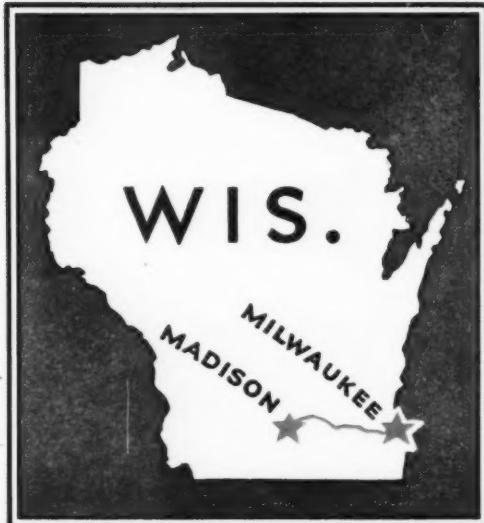
Chicago
3440 N. Kimball Ave.

Roach-Appleton Mfg. Co.

New York
45 Murray Street

ELECTRAGISTS

▲ ▲ ▲ AT
MADISON
WIS.—only
75 miles from
Milwaukee

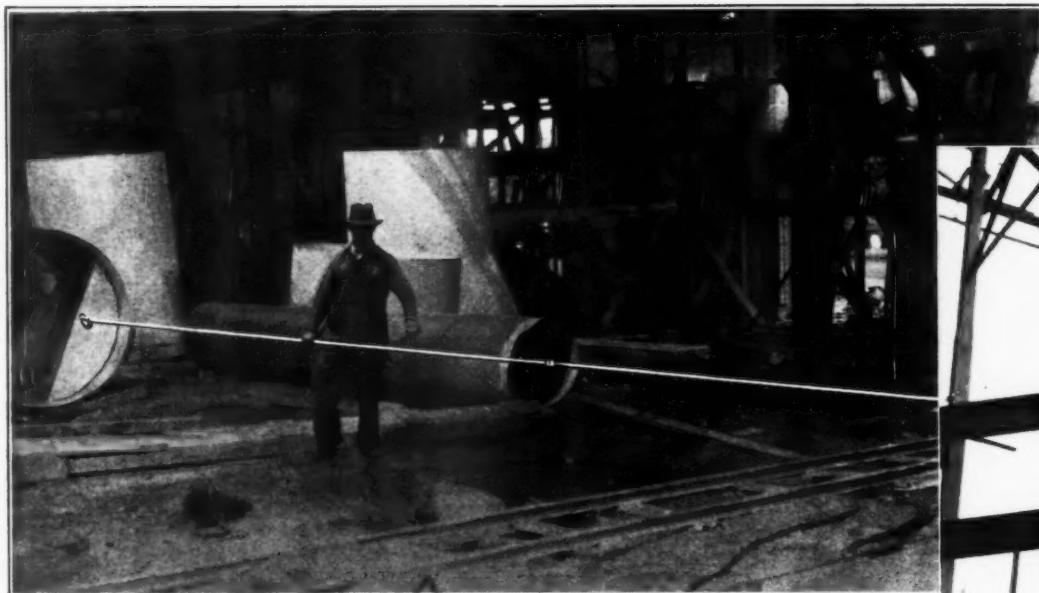


. . R. J. NICKLES IS
WIRING THE NEW
FIELDHOUSE OF
THE UNIVERSITY OF
WISCONSIN WITH

Steelubes

Let him tell you how to save money
using this light weight conduit ▲ ▲ ▲

NO COSTLY LADDER AND S WHERE STEELTUBES IS USED



1—Steel tubes is assembled on the ground.

Some of the prominent users of Steeltubes . . .

American Dist. Telegraph Co.
Standardized for All Districts

Swift & Co. (Stock Yards)
Cleveland, Ohio

American Car & Foundry Co.
Detroit, Mich.

Copeland Refrigeration Co.
W. Grand Blvd. at 12th St.
Detroit, Mich.

Chrysler Corporation
Detroit, Mich.

Chevrolet Motor Car Co.
Buffalo, N. Y.

Frigidaire Corporation
Dayton, Ohio

Buffalo General Electric,
(Power Co.)
Buffalo, N. Y.

Ford Motor Company
Detroit, Mich.

Eli Lilly and Company
Indianapolis, Ind.

Hudson Motor Car Company
Detroit, Mich.

International Silver Company
Meriden, Conn.

Remington Rand Company
Tonawanda, N. Y.

The Theurer-Norton Prov. Co.
Union Stock Yards,
Cleveland, Ohio

Kelvinator Corporation
Detroit, Mich.

Liggett & Meyers Tobacco Co.
Richmond, Va.

Marmon Motor Company
Indianapolis, Ind.

White Motor Company
Cleveland, Ohio

General Railway Signal Co.
Rochester, N. Y.

Mathis Yacht Bldg. Co.
Camden, N. J.

Montgomery Ward & Co.
Baltimore, Md.

Parke, Davis & Company
Detroit, Mich.

Eastman Kodak Company
Rochester, N. Y.

Pratt Food Company
Buffalo, N. Y.

Procter & Gamble Co.
Cincinnati, Ohio

Remington Arms U. M. C. Co.
Bridgeport, Conn.

Enna Jettick Shoe Co.
Auburn, N. Y.

S-K-F Ball Bearing Company
Hartford, Conn.

Timken-Detroit Axle Co.
Detroit, Mich.

Willard Storage Battery Co.
Cleveland, Ohio



2—Then passed up to the job in section

Tolo Scale
Tolo, Ohio

Fedor Glass
Columbus, Ohio

Seabrook Thomas, Co.
Thomaston, Conn.

American Can
New York, N. Y.

The Seaver
Norfolk, Conn.

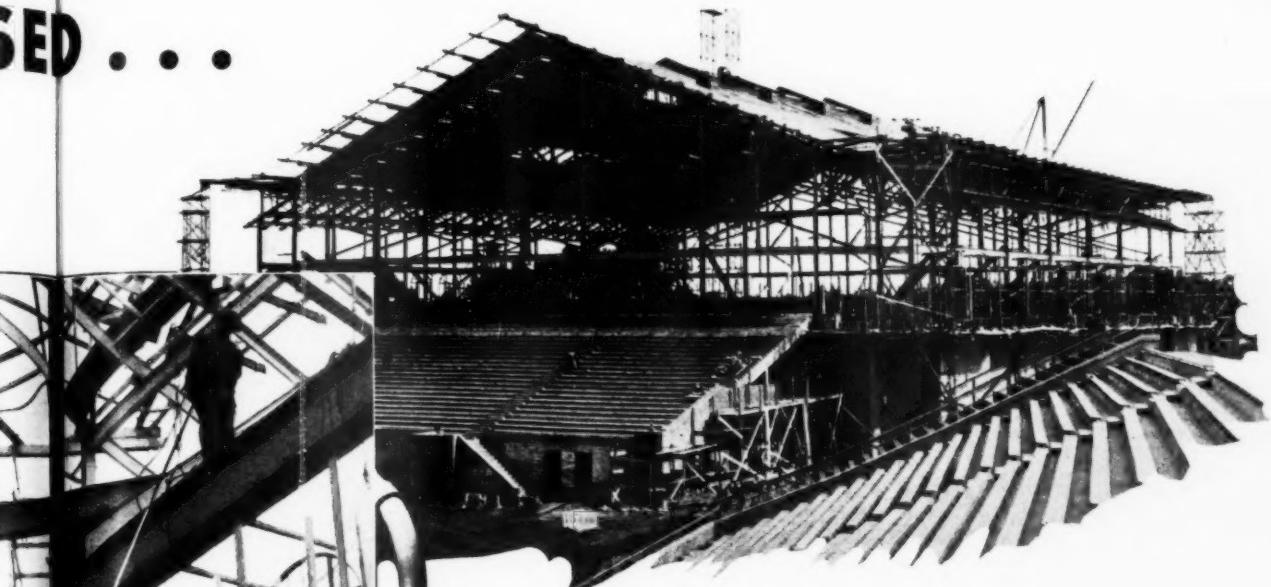
. . . and many

ELECTRICAL DIVISION
STEEL AND TUBES, INC.
CLEVELAND, OHIO

(A Unit of Republic Steel Corp.)

LANDSCAFFOLD WORK NEEDED

USED . . .



Over 50,000 feet of Steeltubes was used in the new Fieldhouse of the University of Wisconsin.



Steeltubes can be installed before small steel brace work is put in, as it does not have to be braced in short lengths.

3—Sections are slid out along girders with wiremen holding each end. So light and strong that its weight does not cause it to sag.



be job in sections.

Toledo Scale Co.
Toledo, Ohio

O. Federal Glass Company
Columbus, Ohio

Seth Thomas Clock Co.
Thomaston, Conn.

American Can Co.
New York, N. Y.

The Reservoir Co.
Norfolk, Conn.

. and many others

Robert J. Nickles

ELECTRICAL CONSTRUCTION AND EQUIPMENT

109 West Main Street

MADISON, WISCONSIN

July 11, 1930

Telephone FAIRCHILD 23

Business Established 1905

Steel & Tubes, Inc.,
224 East 131st Street,
Cleveland, Ohio.

Attention: Mr. Morgan Ellis, General Manager,
Electrical Division

Subject: Field Work in Wisconsin

HERE'S WHAT BOB NICKLES SAYS:

"As for our experience with respect to installation costs, we find that we have actually saved about 33½% in labor costs. We have also been very successful in properly offsetting the larger sizes and we feel that we have performed a better looking job than had we used the regular type of conduit. One of the big advantages in using Steel-tubes is due to its light weight, which will enable a workman to couple several lengths together before putting them in place. Our workmen are enthusiastic over the simplicity of installation and if we are to do another similar job, we could save additional labor because of the familiarity with your product gained through this particular installation."

We felt that you would be interested in knowing just how we progressed with this job, therefore, have seen fit to advise you accordingly.

I am with much respect,

Very truly yours,



RJN:OB

AND THEY MADE
IT A REAL JOB
WITH THAT GOOD

CENTRAL CONDUIT



ARCHITECTS AND ENGINEERS
Martin C. Schwab, Chicago, Ill.

GENERAL CONTRACTORS
Harrison Construction Co.,
Miami, Fla.

ELECTRICAL CONTRACTORS
Harrington Electric Co.,
Miami, Fla.

DISTRIBUTORS
McDonald Electric Co.,
Miami, Fla.

Here is the intricate network of Central Conduit which protects the electrical system of the new Sears Roebuck Building at Miami for all time.

It illustrates the ideal adaptability of Central Conduit for the most complicated installations.

Glossy, smooth interiors provide easy raceways for quick wiring—the soft ductile qualities of the steel tubing make Central Conduit easy to bend—the protective enamel or zinc coatings never crack, chip or flake under the most severe use.

Make your next job a Central Conduit installation. You will like it.

CENTRAL TUBE COMPANY
PITTSBURGH

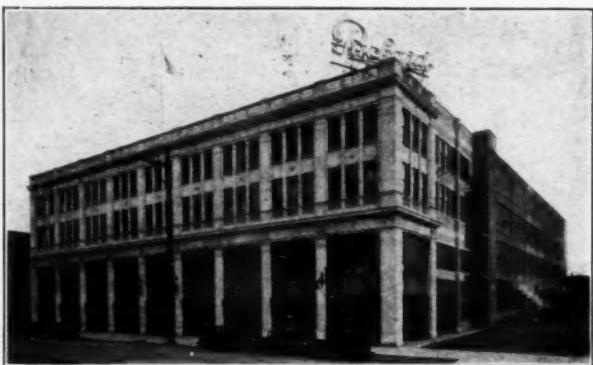


PITTSBURGH STANDARD

GALVANIZED CONDUIT



Ritz Theater, Tulsa, Okla. John Eberson, Chicago,
Architect, J. R. Forner Construction Co., Tulsa.



The Packard Building at 3223 North Broad Street, Philadelphia, Pa.
Philip H. Tyre, Architect and Engineer, Philadelphia; Woodfield-
Thompson Co., Electrical Contractors, Philadelphia.



FOR JOBS to endure; for clean threads and quick fitting couplings; for pipe ends that butt solidly together and make a secure, substantial conduit system; for pipe that bends readily and without injury to the conduit or coating—and for the smoothest, easiest raceway an electrician ever fished—

use Pittsburgh Standard on every job.

**ENAMELED METALS CO.
PITTSTURGH, PA.**

Blow your sales horn!! ..doors will open

*To bigger profits in
the garage
ventilation field!*

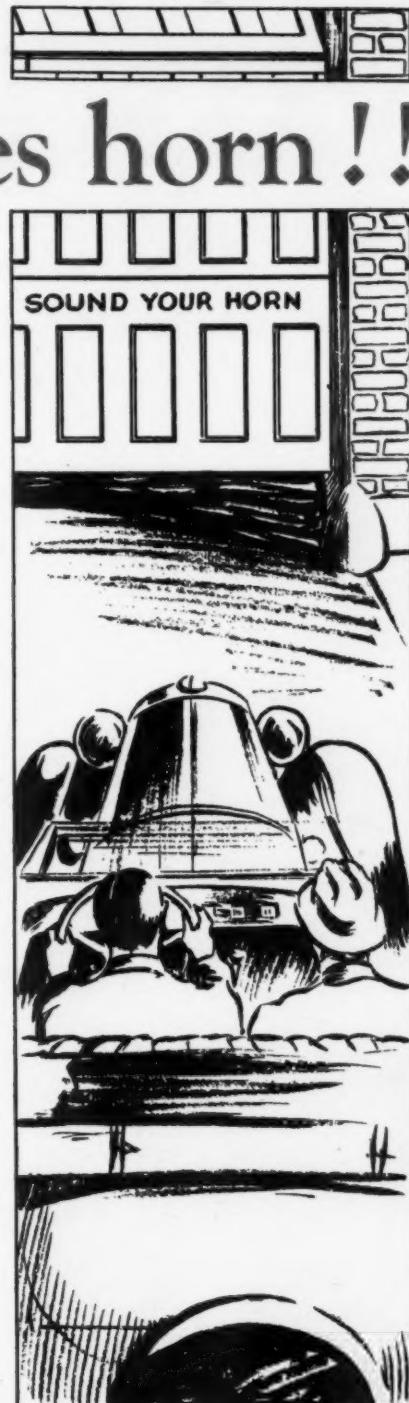
Ventilation is a profitable field—more so than ever when selling garage owners. Gasoline exhaust (monoxide gas) is not only disagreeable to breathe, but it is deadly! In many states the law requires garage ventilation. Garage owners realize the necessity of adequate ventilation, thus sales resistance is minimized. . . . Blow your sales horn and open the doors that lead to profitable installations in the garage ventilation field! New garages constantly are being built. Old garages have fans that need replacing, or more fans must be added. Sell them BUFFALO "BREEZO" fans that give quiet, trouble-free service. They are long lasting and highly dependable. BUFFALO "BREEZOS" are built by one of the largest and most progressive companies in the field of fan and ventilation equipment. Our engineering staff is always at the service of Electrical contractors. We help you in solving all ventilation problems. Write us at once for complete information.

BUFFALO FORGE COMPANY

504 Broadway, Buffalo, N. Y.
In Canada: Canadian Blower & Forge Co., Ltd.
Kitchener, Ont.



This is a fresh air age!
Garages are one of many
profitable outlets for BUFFALO "BREEZO" ventilation equipment.



BUFFALO BREEZO

ACT NOW! Mail Coupon Today!!

THE PUBLIC
ALREADY IS
FRESH AIR MINDED

BUFFALO FORGE CO.,
504 Broadway, Buffalo, N. Y.

Gentlemen: Please send me, without obligation on my part, complete information on how to make money on "Buffalo Breeze" ventilating equipment.

Name..... Address.....
City..... State.....

GREENLEE

The House that Makes a Specialty of Inside Tools for the Electrical Trade



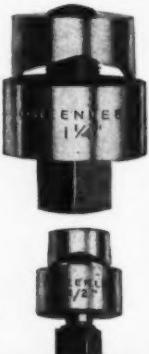
A Real JOIST BORER

The Greenlee No. 750 Joist Borer makes the electrician's job of joist boring easier by combining the latest developments in design with a construction that is accurate and high grade. Outstanding improvements are: The range of boring is increased because the self-centering chuck drives bits up to $\frac{1}{4}$ " in diameter. The



chuck, which has a machined square hole, assures positive drive at all times. The spindle runs in ball bearings packed in grease, resulting in long life. Instead of square links for the chain, round links are used, affording a smooth surface for gripping when using the tool.

Write for your copy of this miniature tool catalog.



KNOCKOUT PUNCHES

Enlarging holes in switch and circuit cabinet, panel boards, etc., . . . a job that formerly took an hour, now can be done in a minute and one-half or less, with a Greenlee Knockout Punch! And it leaves a clean, round hole; no filing or reaming is necessary.

Any common wrench will drive this tool. Cutting is done by a two-point punch, driven by screw action through the metal into a die.



A Bit Extension that Always Stays Locked

Contractors, the No. 900 Bit Extension always stays locked. In addition the tool is so constructed that it will drive a bit up to one inch in diameter, and also is small enough to follow a $\frac{5}{8}$ -inch bit. The positive lock insures a rigid grip on the bit shank and prevents the bit from being lost in the work.

The No. 925, a larger extension, will follow a $\frac{1}{2}$ " bit and drive tools up to 2".

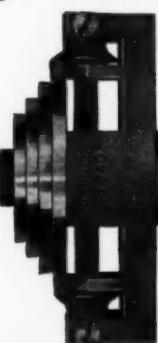


Above is shown the positive locking mechanism on the Greenlee Bit Extension—an entirely new idea in tools of this type.



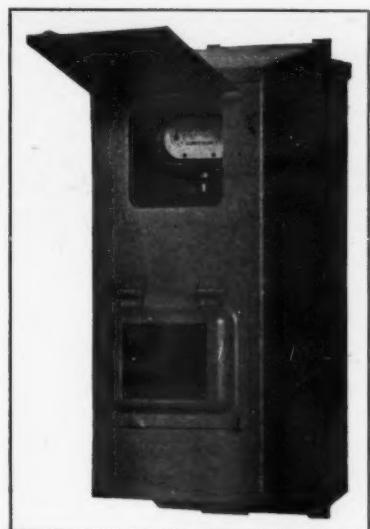
The No. 31 SPEEDIEST of them all

The No. 31 is known as the fastest boring bit on the market. It is fitted with a screw point which leads six turns to the inch, or about twice as fast as the average auger bit. Long life results because it has two outlining spurs in addition to two side lips.



The Knockout CUTTER

This tool is for making larger holes than is possible with the Greenlee Punches. Cuts a smooth hole without filing or reaming. A common wrench will drive this tool. Enlarging is by cutting, the power being applied by screw action.



"A" TYPE, MAIN FUSE ACCESSIBLE
Patent No. 1,453,591
and Other Patents Applied for.

ADVANTAGES OF THE LEWIS METER CABINET

- 1 Device comes ready for installation.
- 2 Weatherproof.
- 3 Fireproof.
- 4 Small and compact.
- 5 Will cost the consumer considerable less than the wood type of construction.
- 6 Less chances for damages to equipment.
- 7 Uniformity of installation.
- 8 Meter may be read without opening cabinet.
- 9 Will last indefinitely.
- 10 Is one-third as conspicuous as it is only one-third the size of wood construction.
- 11 A seal or lock may be used on the LEWIS Cabinet.
- 12 The window is large enough to read all the numbers on the face of the meter as well as the dials.
- 13 Cabinet is made of rust-resisting steel.
- 14 Eliminates the possibility of meter readers being blamed for thefts committed by others.

THE M. J. LEWIS PRODUCTS CO.
(MORGAN J. LEWIS)
508 W. Girard Ave.
PHILADELPHIA, PA.

Mail coupon today!

M. J. LEWIS PRODUCTS CO., 508 W. Girard Ave., Philadelphia, Pa.

Gentlemen: I am interested in the profit possibilities offered in the sale and installation of Lewis Meter Cabinets. Please send me, without obligation on my part, your latest literature describing the many advantages of these weatherproof cabinets.

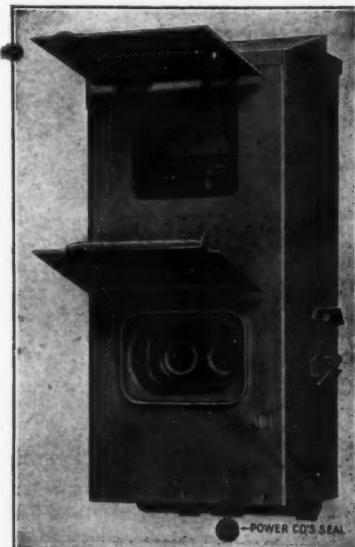
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City..... State.....



NOW — A 30 AMPERE AND 60 AMPERE WEATHERPROOF METER CABINET

Now — a "LEWIS" Weatherproof Meter Cabinet! Is also fireproof, and approved for indoor and outdoor use. Easy to install, you save time and money on every LEWIS installation. Write us today for details.



ML 7311 Switch in off position
for changing fuses.



Look for THIS *then you're sure*

MEN who know their A B C's in electrical contracting look for "G-E" and "BX" embossed on armored cable. These are marks of dependability . . . "the Initials of a Friend."

For over a quarter century General Electric has been putting them on flexible armored cable built of highest grade materials for longest service . . . cable made extremely flexible by a special rolling process . . . cable that's tested rigidly at the factory . . . cable that lives up to its name and guarantee.

You can always be *sure* of G-E "BX." Look for the initials!

GENERAL  **ELECTRIC**
"BX" Type **ARMORED-BUSHED-CABLE**

(Licensee, Patent No. 1,687,013)

MERCHANDISE DEPARTMENT

• GENERAL ELECTRIC COMPANY

• BRIDGEPORT, CONNECTICUT

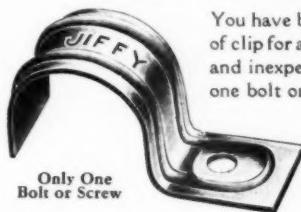
OPEN WIRING » » CABLE OR CONDUIT INSTALLATION..



Products speed the work for Contractors

Make more permanent jobs.
Used by the contractor for many years in increasing numbers.

MINERALLAC JIFFY CLIP



Only One Bolt or Screw

You have been looking for this type of clip for a long time. Light, strong and inexpensive, and requires only one bolt or screw to make a secure, neat and compact job. Accommodates pipe from $\frac{1}{8}$ to $1\frac{1}{4}$ inches (pipe measurement).



Minerallac Compound in the Cable Joint

MINERALLAC INSULATING COMPOUNDS

Minerallac Compounds have that consistency which prevents "cracking" in cold weather and too free a flow during the warm days. Thus, extremes in temperature will not affect this material—a worthy test of any insulator.

MINERALLAC CABLE AND CONDUIT HANGERS

JAPANNED OR GALVANIZED

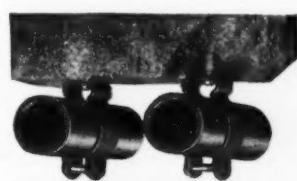


Hanger with Porcelain Bushing

Approved by the Underwriters' Laboratories

When standardized spacing of Hangers is employed, the appearance of the completed job is improved and the work is simplified.

From $\frac{3}{8}$ to $2\frac{1}{2}$ inches, both inclusive, pipe measurement.



Hanger without Porcelain Bushing

MINERALLAC

ELECTRIC
25 N. Peoria St.



COMPANY
Chicago, Ill.

Save Time on every job with G-E CODE WIRES

COLORS

<i>Black</i>	<i>Blue</i>
<i>White</i>	<i>White</i> <i>(with tracer)</i>
<i>Red</i>	<i>Brown</i>
<i>Green</i>	<i>Yellow</i>



EVERY hour a wireman saves on a job is the same as money in the contractor's pocket.

G-E Code Wires save time because their slicked finish makes them glide easily through conduits with least friction and binding. Their *eight colors* reduce lost motion in testing . . . circuits are readily identified.

All G-E Code Wires exceed Code

requirements. Conductors are exactly centered in high quality insulation. Every foot is tested before it leaves the factory.

You can depend on G-E Code Wires for ease in installation and satisfactory service.

Deliveries are promptly made from the stocks of G-E Merchandise Distributors *everywhere*.

GENERAL ELECTRIC  
CODE WIRES

ELEMENTS OF THE G-E WIRING SYSTEM

MERCHANDISE DEPARTMENT • GENERAL ELECTRIC COMPANY • BRIDGEPORT, CONNECTICUT



Marquette University Stadium—Milwaukee, Wisconsin

Mr. Shermerhorn says— “We sell the GIANT LINE because their Sales Policy

protects contractors who push their line, and the Giant Projectors are designed for better lighting service and not for a cheap selling price. All contractors ought to remember that there is more money to be made by selling good lighting equipment than by selling low prices. We sell lighting service on the basis that the customer is always entitled to the best job we know how to install—that means selling Giant Projectors in most cases.”

“On the Marquette Stadium job we used sixteen No. 4500 units. 72,000 watts provide adequate illumination to the entire field for night football. Get started now, planning sales of lighting equipment to high schools, colleges and professional football clubs, for providing night illumination for their grounds this season, and when you get the job, you can’t go wrong if you use Giant Projectors. See me in Milwaukee at the convention and I’ll tell you our experience with this line.”

If you can't be in Milwaukee Write or Wire for Further Information

GIANT MANUFACTURING CO.

Council Bluffs, Iowa

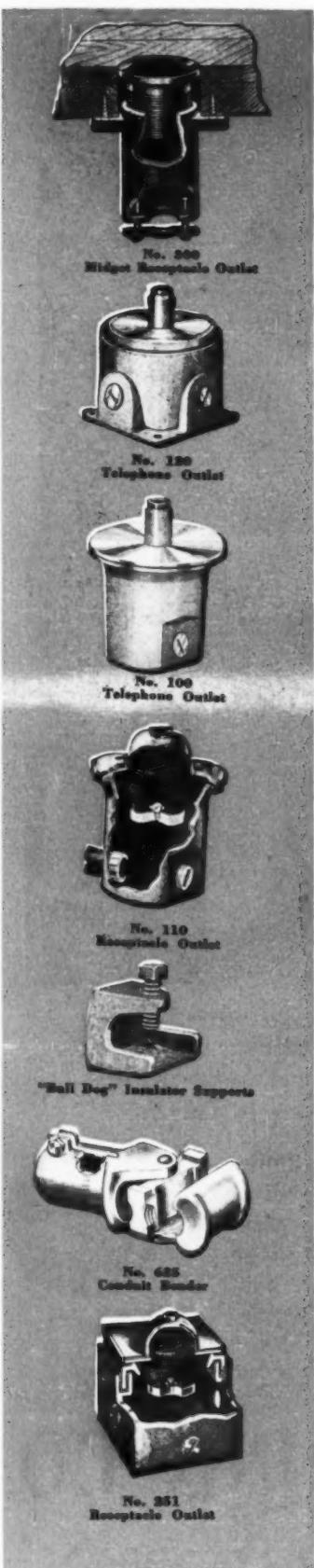
Division E-C

Trenton, N. J.



Mr. Shermerhorn, Pres.
A. C. Electric Co., Milwaukee, Wis.





the home of

"LATROBE" QUALITY PRODUCTS

FLOOR BOXES
JUNCTION BOXES
FISH WIRE
CONDUIT BENDERS
INSULATOR SUPPORTS

Fullman Manufacturing Co.
1209-1215 Jefferson St., Latrobe, Pa.



QUALITY-DESIGN

In "LATROBE" products only highest grade raw materials are used and it is the latest designed line on the market, incorporating modern requirements of both architects and construction men.

Installation in many of the architecturally prominent buildings throughout the country indicates trade acceptance and popularity even when subjected to the most exacting demands or requirements.

Popularity of the "LATROBE" line indicated by large number of jobbers that carry "LATROBE" products in stock for quick delivery to the job.

Ask your jobber today or write us direct for information on the "LATROBE" line. It will pay you.

MAIL THIS COUPON TODAY

FULLMAN MFG. CO.,
Latrobe, Pa.

Please send us a copy of the 1930 Code Book and quote us on.....

Name.....

Address.....

City..... State.....



ELECTRAGIST MOTOR SPECIALISTS

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MILWAUKEE!*

*The
Home of*

ALLIS-CHALMERS

The NEW outlet TUBELETS



Designed especially for use with
Electrical Metallic Tubing
(Thin Wall Conduit)

Tubelets are threadless fittings,
vapor proof and water tight
when gasketed. Made of tough
malleable iron and protected
from corrosion with TaBolite.

Miniature in size, but ample room
inside to pack away splices. Neat
and inconspicuous in appearance

Tubelets answer all that
is required in
an outlet for
electrical con-
ductors.

All wiring de-
vices are made
of black porce-
lain, forming

a rich color contrast with the bright silvery finish
of TaBolite.

The easiest, speediest, and lightest to use of all rigid
installations.

For complete information send for our new bulletin.

Just Out — A Complete Line

T U B E L E T S
TRADEMARK

Pat. Pending

Approved

THE THOMAS & BETTS CO.

15 Park Place, New York City

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Factory, 36 Butler St., Elizabeth, N. J.

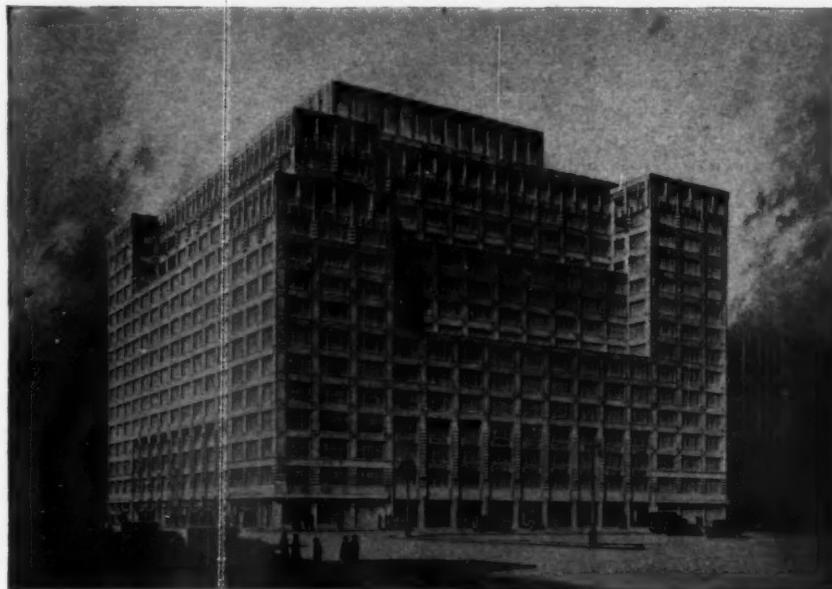


Every contractor owes it to his own pocket-book to keep in touch with this business building "Modernize-with-Light" Campaign.

This campaign is receiving widespread support and cooperation by central stations and other industry factors. Full details of each campaign appear in each issue of The "Wiremold Business Builder" — which is sent FREE to contractor dealers. If you are not getting this free sales service, LET US HAVE YOUR NAME AT ONCE.

THE WIREMOLD COMPANY
HARTFORD, CONN.

PROVES ITSELF ON THE JOB!



The Holland Plaza Terminal Bldg., New York City, in which the electrical wiring is permanently protected with Youngstown-Buckeye Conduit.

*Architects—
BUCHMAN & KAHN
Builders—
SHRODER & KOPPEL
Electrical Contractor—
ENERGY ELECTRIC CO.*

DISTRICT SALES OFFICES

ATLANTA—Healy Bldg.
BOSTON—80 Federal Street
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CHICAGO—Conway Bldg.
CINCINNATI—Union Trust Bldg.
CLEVELAND—

Terminal Tower Bldg.

DALLAS—Magnolia Bldg.
DENVER—Continental Oil Bldg.
DETROIT—Fisher Bldg.
KANSAS CITY, MO.—Commerce Bldg.

MEMPHIS—P. O. Box 462
MINNEAPOLIS—Andrus Bldg.

NEW ORLEANS—Hibernia Bldg.
NEW YORK—30 Church St.
PITTSBURGH—Oliver Bldg.

PHILADELPHIA—Franklin Trust Bldg.
SAN FRANCISCO—55 New Montgomery St.

SEATTLE—Central Bldg.
ST. LOUIS—525 Louderman Building
YOUNGSTOWN—Stambaugh Bldg.

LONDON REPRESENTATIVE
The Youngstown Sheet Products Co.
Dashwood House, Old Broad St.,
London, E. C. England

IT IS NOT merely a coincidence that electrical contractors almost inevitably standardize on Youngstown-Buckeye Conduit once they have used it. Experience has convinced them of its ease of installation. It has demonstrated that each length is absolutely straight and round; that it will not break or open at the welds in bending; that it has a durable enamel or galvanized coating; that all threads are deeply and cleanly cut—and protected in shipment.

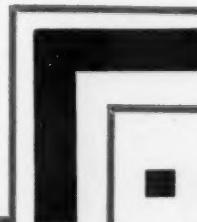
And in addition to these points which make for easier installation, the test of time and performance has proved that Youngstown-Buckeye Conduit also affords permanent protection to the electrical wiring in any building. Try it on your next job and convince yourself.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

One of the oldest manufacturers of copper steel, under the well-known and established trade name "Copperoid"

General Offices—YOUNGSTOWN, OHIO

GALVANIZED SHEETS PROTECT -:- SAVE WITH STEEL



WALKER UNDERFLOOR DUCT

with Uniform Height Preset Inserts

(3)

—Costs less to install

SIMPLE REASONS WHY

Three easy steps carry you through to a perfect completed job with Walker Alsteel Underfloor Duct.

FIRST—Set the junction boxes (A) level with the required floor height, using adjustment screws on box for this purpose.

SECOND—Insert the ten foot lengths of duct (B) in the junction box openings.

THIRD—Level the duct with the screw adjustment type duct support provided for the purpose.

The inserts (C) in the duct are all PRESET uniform height. They come to the right height automatically (just $1/16$ " below the level of the junction box covers) when you level the duct, saving you time and money on every job and thousands of dollars on large installations. Even comparatively unskilled men can't go wrong working with Walker Alsteel Underfloor Duct systems. Not one minute of time is lost leveling up inserts.

Walker Alsteel Underfloor Duct with preset inserts and junction boxes offers the simplest, most economical and most efficient means for taking care of present and future requirements for power lines, signal systems and telephone connections throughout modern commercial and industrial buildings.

Long experience and advanced engineering development have enabled us to reduce this system to its simplest and most practical form. All unnecessary time-consuming adjustments have been eliminated. And the results meet every present and probable future requirement.

Meet all the requirements of the National Board of Fire Underwriters and cities having all-metal code.

Advocate its use in both small and large buildings—there is a growing demand for underfloor duct systems throughout the country and it's a profitable business for the electrical contractor.

Walker Bros.

New York

San Francisco

Philadelphia

WALKER ALSTEEL UNDERFLOOR DUCT



QUADRANGLE MANUFACTURING COMPANY
30 SOUTH PEORIA STREET CHICAGO, ILLINOIS



An outstanding example of fine Wurdack craftsmanship are the switchboards, power panels, metering panels and lighting panels built for the Chicago Daily News. This newspaper plant uses a tremendous amount of current, for in addition to its power and light requirements, it utilizes electricity for fluxing type metal in the five Autoplate casters, each drawing 900 Amperes, and in the 64 Linotype metalpots, each rated 1500 Watts. All of this current is routed

to its proper terminals through three large Wurdack switchboards. Two of these, the main service and the main distributing switchboards, are in a basement room, while the third is located in the press room gallery. Wurdack switchboards are scientifically designed by a corps of able engineers, and are ruggedly constructed from the best of materials. A Wurdack Switchboard, custombuilt for your particular job, will give years of dependable service.

MIAMI
ATLANTA
CHICAGO
LOUISVILLE
FORT WORTH
MINNEAPOLIS

When in Chicago, you are cordially invited to visit the Daily News and examine these fine Wurdack Switchboards for yourself.

WM WURDACK
ELECTRIC MFG. CO.
4444 CLAYTON AVE. • • • ST. LOUIS, MO.

TAMPA
OMAHA
HOUSTON
KANSAS CITY
NEW ORLEANS
SAN ANTONIO



NEW 30-TON HYDRAULIC This Practical and Eco- nomical Pipe Bending Machine on Every Job

insures electrical contractors a great saving in time, which expedites and simplifies the work . . . even hydraulic power under perfect control bends the pipe uniformly. The Lidseen Pipe Bender is the easiest to operate and adjust. It weighs less and can be moved from one job to another with greatest dispatch. Strongly constructed, it is capable of 30 tons pressure and will meet your every requirement.

SAFETY for MEN and WORK

The Lidseen Pipe Bender new way method makes it possible for your men to bend and straighten cold conduit, pipe, tubes and bars accurately and speedily without the slightest danger. Each machine is equipped with five bending shoes suitable for bending conduit—2, 2 1/2, 3, 3 1/2 and 4-inch. One man operates the Lidseen Pipe Bender, exerting hydraulic power up to thirty tons with utmost ease. With high or low speed perfect control always is an outstanding feature. To lower, simply turn release valve and the load settles down to a smooth controlled speed or shoe to any point. It is unnecessary to remove pipe or shoe when changing to a new bend. Shoes can also be had to handle 1 1/4, 1 1/2 and 4 1/2-inch conduit.

Write today for descriptive folder, or better still, order at once from your jobber, or write us direct, giving us his name.

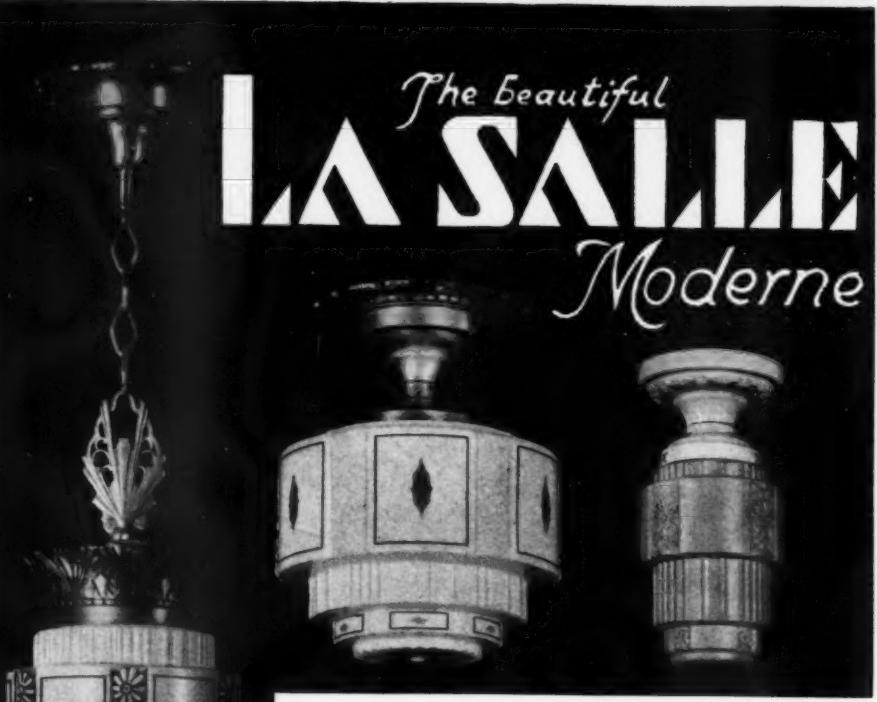


LIDSEEN PIPE BENDER

GUSTAVE LIDSEEN, Inc.
832-840 SOUTH CENTRAL AVE.
CHICAGO

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GRACEFUL AND PRACTICAL



*Contractor Lighting Experts Who
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The "La Salle" radiates charm wherever displayed. It has character. The graceful lines and beautiful decorations are as attractive as they are different.

But the "La Salle" was also designed to be practical from a lighting standpoint. It is ideal for the large and small store, the hotel and restaurant and in shops of every character. The Short Type "La Salle" offers just the right size for lower ceilings, balconies, etc. The "Petite" Type "La Salle" is made to complete the ensemble.

All types are supplied in decorated and Snow-White. Investigate this handsome unit today. Make your next installation a "La Salle" installation. Ask your jobber now—he knows the "La Salle."

INLAND GLASS WORKS, INC. ••• CHICAGO

Inland

mistake in pagination.
no material lacking.

Suggested RESALE PRICES *for* Wiring Supplies

The prices listed on the following pages are merely suggested resale prices for the commonly used standard supplies and equipment employed in electrical construction work. They are based on average current trade costs throughout the country, very largely obtained from jobbers' price sheets, and are also based on average overhead charges.

* * *

Obviously, prices can be suggested only for the widely used products that are nationally distributed, and under no circumstances is this section intended to function as a directory of products or manufacturers.

* * *

The publishers wish to again emphasize that these are merely *suggested* resale prices and while every effort is made to make them universally applicable and accurate we cannot guarantee them or assume any responsibility for errors.

* * *

The prices appearing in this section will be completely revised each month as trade prices may change.

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Electrical Trade Publishing Co.

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IN BAKELITE

FOR industrial use where good looks are essential and good service indispensable . . . These lustrous BAKELITE Sockets give finish to a finished job of plant wiring. Unaffected by moisture or chemical fumes. Non-discoloring, non-corroding, non-conducting. Complete insulation in damp places.

SNAP-catch fastening for quick assembly . . . And the "works" of this finest industrial socket is the standard ARROW socket mechanism used in the brass shell line. With this mechanism ARROW made its reputation and the electrical Contractor has safeguarded his own. Specify from table at right.

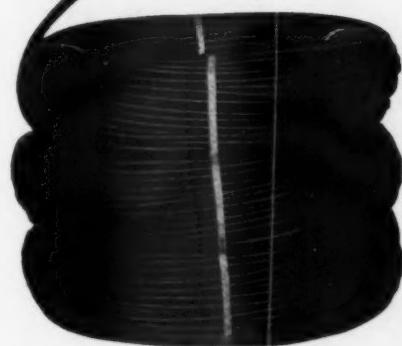
Cat. No.	Description
OA	Key Body, 250 Watts—250 Volts
OB	Key Body, 660 Watts—250 Volts
OC	Keyless Body, 660 Watts—250 Volts
OD	Pull Body, 250 Watts—250 Volts
OE	Pull Body, 660 Watts—250 Volts
OW	Push-through Body, 660 Watts—250 Volts
217	Pendent Cap

ARROW ELECTRIC DIVISION

THE ARROW-HART & HEGEMAN ELECTRIC CO.

HARTFORD, CONN.

"AMERICORE" RUBBER COVERED WIRE



*used throughout
interior of Russ Building, San Francisco*

This is the largest office building west of Chicago. The fact that Americore was specified for the interior of this building emphasizes the approval given Americore by Architects and Engineers everywhere. Americore surpasses code requirements—its quality

is outstanding, having proved dependable and economical over a long period of years. When we say "use Americore for Safety," we simply pass on to you the service results of this rubber-covered wire. A complete range of sizes to meet all needs.

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"Diamond H" Remote Control Switches in Hotels

The many and varied lighting circuits in the large hotels demand a form of simplified, dependable control.

"Diamond H" Remote Control Switches are used in the Hotel Lexington Grill, to control various colored lighting effects for dancing. Controls are operated from orchestra stand.

6-60 ampere double pole switches are used for the different circuits.

There are many uses to which they may be put in a hotel—flood, sign and exterior lighting, elevator sign control, exit, stairway and corridor lighting, effect lighting for ballrooms and grill rooms.

Our engineers are ready to help you to include them in any job.

"Diamond H" is the modern control.

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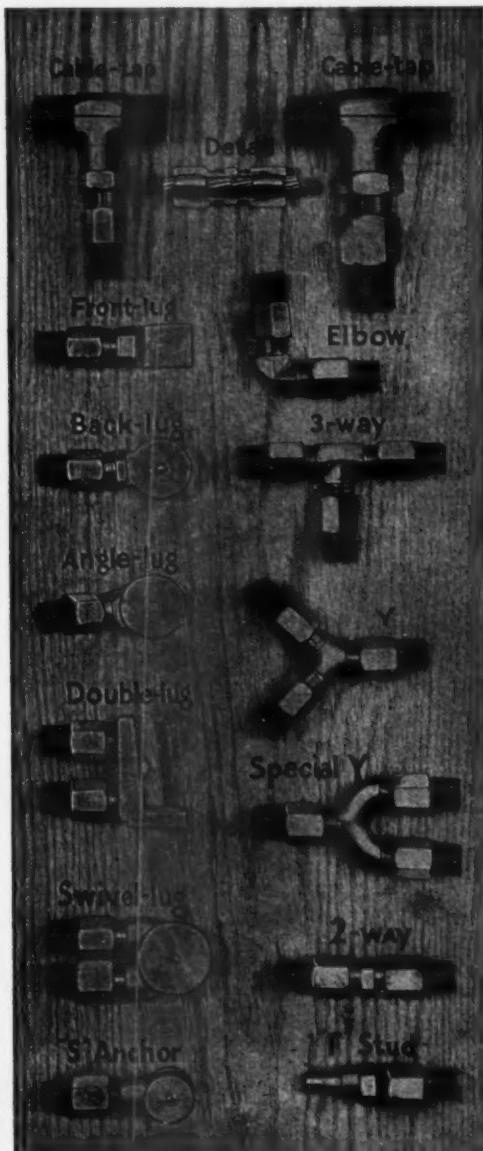
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TORONTO, CAN.

DIAMOND **H** SWITCHES

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**SOLDERLESS CONNECTORS
SPEED THE WORK**



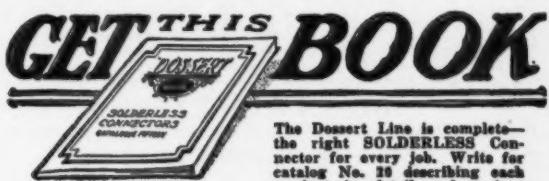
**YOU ARE THE MAN
TO LAND MORE
WIRING JOBS**

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in your territory are all live and immediate prospects. One bad joint can ruin the best wiring system. With Dossert connectors you can handle difficult jobs faster and more accurately. Dossert Solderless Connectors guarantee the job for you.

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easy to use*

Prices are right — deliveries prompt and Dossert products are of highest quality always. You can do more work in less time and make more money on every job if you start now using Dossert Solderless Connectors.



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DOSSERT & COMPANY

242 WEST 41ST STREET

NEW YORK, U. S. A.



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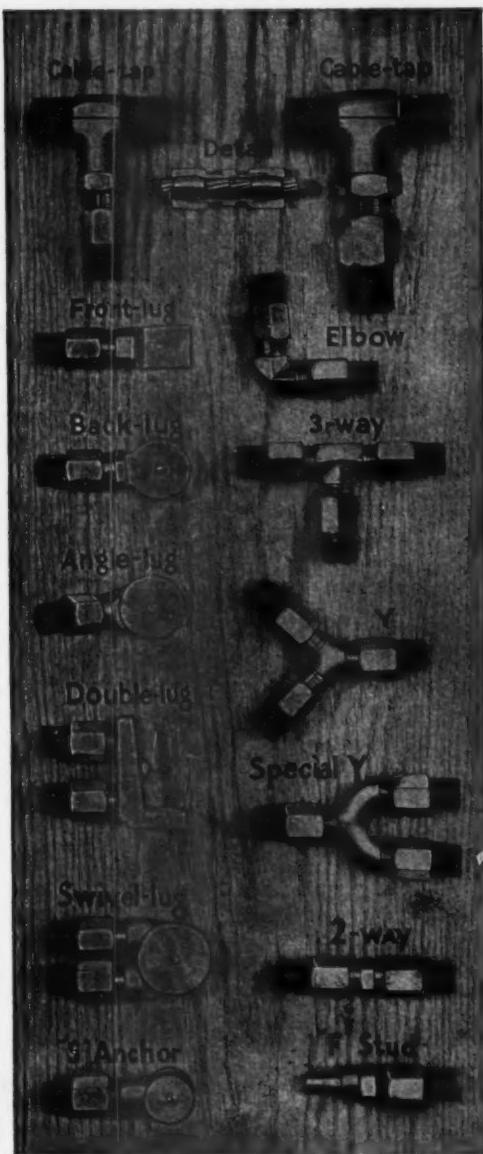
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TORONTO, CAN.

DIAMOND **H** SWITCHES

DOSSERT

**SOLDERLESS CONNECTORS
SPEED THE WORK**



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DOSSERT & COMPANY

242 WEST 41ST STREET

NEW YORK, U. S. A.

THREADED COMPOSITION BUSHINGS

Size	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	1"	$1\frac{1}{8}$ "	$1\frac{1}{4}$ "	2"	$2\frac{1}{4}$ "
Without Locknut.....	.05	.11	.14	.15	.20	.30	.45	.85
With Locknut.....	.09	.15	.18	.24	.30	.45	.77	1.15

Socket Bushings

Black Composition.....	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$1\frac{1}{8}$ "
For Sockets.....	.02	.02	.04	.08

BOXES, FLOOR

NON-ADJUSTABLE TYPE

Full "Latman" robe" & Steel Fulman & City Mfg. Co. Co.	Russell & Stoll	Description	Price
477 110	2580	Comp. Out. with Std. Rec. & Bell Nozzle	\$4.00
490 100	2590	" Less Std. Rec. with Stem Nozzle	3.50
490 100	2590	Comp. Out. Less Std. Rec. less Nozzle	2.40
491 ...	...	Comp. Out. with 20A. Polarz. Rec. & Bell Noz.	4.90
499 300	...	Mid. Et Out. with 10A. Recept. No Nozzle	2.25
495 ...	...	Square Out. Less Recept. with Bell Nozzle	4.30
496 ...	...	Square Out. With 15 Amp. Rec. & Bell Nozzle	5.40
497 ...	...	Sq. Out. With 25 A. Rec. & Large Bell Nozzle	8.60

ADJUSTABLE TYPE

400 120	2502	Complete-Shallow Box—Less Receptacle	\$4.30
400	Complete—Deep Box—Less Receptacle	5.25
401 130	...	Complete—Shallow Box With Receptacle	5.35
401	Complete—Deep Box With Receptacle	6.30
420	Complete Large Size Box Without Receptacle	4.90
421	Complete Large Size Box With Receptacle	5.95

ADJUSTABLE GANG TYPE

441 251	2511	Single Gang Less Recept. with $\frac{3}{4}$ " Cover Plate	\$ 5.35
442 252	2512	Two " " " "	10.75
443 253	2513	Three " " " "	16.10
444 254	2514	Four " " " "	21.45
445 ...	2515	Five " " " "	26.90
Extra for Brass Cover Plate and Receptacle.....			Per Gang 1.25

G. E. & T & B BOXES

G. E. 8000	T & B 8000	Description	Price
8200 1700	Utility Outlet Box.....	\$.90	
8220-40 1701	Two Wire Floor Box.....	4.00	
8300 1200	Three Wire Floor Box.....	5.00	
8400 ...	Special Outlet Extension Type.....	2.60	
8420-40 ...	Master 2 Wire Plug Outlet.....	5.60	
8420-40 100-200	Master 3 Wire Plug Outlet.....	6.50	
8420-40 1100	Complete—Cover, Nozzle, Plug and Receptacle.....	4.00	
	Complete—Cover, Nozzle, Plug and Receptacle.....	8.25	

BOXES, CUTOUT

TYPE "A" STEEL SURFACE CUTOUT BOXES

Black

Width	Length	3"	4"	6"	Short	Long	3"	4"	6"
Side	Side	Deep	Deep	Deep	Side	Side	Deep	Deep	Deep
4 $\frac{1}{2}$	5	.65	....	....	12	30	\$10.75	\$12.40	
4 $\frac{1}{2}$	6	.65	....	....	15	15	2.75	4.15	
4 $\frac{1}{2}$	9 3 $\frac{3}{4}$ "	.65	....	....	15	18	3.00	4.75	
6	6	.65	\$.80	\$1.20	15	24	5.70	6.50	
6	8	1.00	.95	1.40	15	30	13.35	15.30	
6	9	.85	1.50	1.80	18	24	4.75	5.40	
6	12	1.35	1.10	1.05	18	21	10.65	12.50	
8	8	1.35	1.05	1.70	18	24	12.20	13.00	
8	10	1.45	1.20	2.00	18	30	15.20	15.40	
8	12	1.80	1.40	2.25	18	36	17.80	19.40	
9	9	1.15	1.80	2.30	18	40	19.50	21.30	
9	12	1.40	2.15	2.60	24	24	15.30	17.40	
10	10	1.70	1.40	2.35	24	30	19.10	20.80	
10	12	1.95	1.70	2.65	24	36	22.35	23.75	
10	15	2.35	1.85	3.10	24	40	24.30	26.60	
10	18	2.70	3.00	3.60	30	44	41.35	45.30	
12	12	2.25	1.80	3.00	30	36	27.20	29.65	
12	15	2.40	2.10	3.50	30	36	41.55	47.40	
12	18	2.50	4.00	3.40	32	42	48.85	53.00	
12	24	4.40	5.40	30	48	56.70	61.30		

For Galvanized Boxes Add 50% to above prices.

BELLS & BUZZERS

Ansonia

Name	No.	Description	Buzzer	2 $\frac{1}{4}$ "	3"	4"	Cow or
Ansonia	656	Sgle. Coil Non Adjust.	\$.40	\$.45	....	....	Sleigh
Ansonia	657	Dble. Coil Non Adjust.	.50	.55	....	....
Ansonia	652	Dble. Coil Round Non Adjust.	.55	.60	....	....
Wizard	659	Dble. Coil Non Adjust.	.90	.95	....	....
Eureka	641	Dble. Coil Adjust. Class B.	.95	1.00	\$1.25	\$1.60	\$1.80
Acme	631	A. Dble. Coil Adjust. Class	1.35	1.40	1.50	1.80	2.10
Eureka	621	Dble. Wood Box Bell	1.20	1.35	1.40	1.65	1.85
Monitor	658	Round Type	....	....	....	....
Wizard	660	Comb. Bell & Buzzer	1.25	1.25	1.35	....
Wizard	655	Buzzer Oak Mat	1.70	....	....	....
Wizard	666	Watch Case Buzzer Round	1.25	....	....	....
Ansonia	662	Comb. Bell & Buzzer	1.00	1.00	1.10	....

BELLS AND BUZZERS—Continued

Edwards

Name	No.	Size	Description	Price
Nubel	735	2 $\frac{1}{4}$ "	Two Coil Non-Adjust.—Gray Enam. Bell	.65
"	736	2 $\frac{1}{4}$ "	" " " " " Buzzer	.60
Dixie	720	2 $\frac{1}{4}$ "	" " " " " Class C-Non-Adjust. Bell	.95
"	725	2 $\frac{1}{4}$ "	" " " " " Buzzer	.90
Combell	737	2 $\frac{1}{4}$ "	Two Coil Non-Adjust.—Gray Enam. Bell & Buzzer	1.15
Tubell	738	2 $\frac{1}{4}$ "	Dble. Coil Non-Adjust.—Gray Enam. Two Bells	1.20
Cader	710	2 $\frac{1}{4}$ "	Two Coil-Class B-Adjust. Bell	1.00
"	715	3"	" " " " " Buzzer	.95
"	712	3"	" " " " " Bell	1.25
"	714	4"	" " " " " Bell	1.60
"	711	4"	" " " " " Cow or Sleigh	1.80
Buz-A-Bell	730	2 $\frac{1}{4}$ "	Two-Coil—Class C Comb. Bell & Buzzer	1.20
Monitor	156	3"	Monitor Bell-Nickel Plated Gong	1.50
Bronx	750	1 $\frac{1}{4}$ "	Nickel Watch Case Buzzer	1.25

Edwards—Lungen

No. 13 Bells	Size	Price
1"	1"	\$2.00
1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1.80
2 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	1.90
3"	3"	2.00
4"	4"	2.20
6"	6"	9.50
Cow or Sleigh		2.35

No. 15 Buzzers

No. 15 Buzzers	Size	Price
1 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ "	No. 0	\$1.85
2 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ "	No. 1	1.60
2 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ "	No. 2	1.70
3 $\frac{1}{4}$ " x 2 $\frac{1}{4}$ "	No. 3	2.00
3 $\frac{1}{4}$ " x 2 $\frac{1}{4}$ "	No. 4	2.30

Patrick & Wilkins

Iron Box Bells

Small 2 $\frac{1}{4}$ " Iron Box Bell Non-Adjust. Dble. Magnet.	\$.75
Fancy Gong Cow or Sleigh Non-Adjust. Dble. Magnet.	1.65
King Monitor Bell.	1.65
6" Large Iron Box Bell for Battery Current.	7.30
8" " " " " "	10.50

Buzzers

Name	No.	Description	Regular Type	Large Type
Competition	400-1	Dble. Coil Non-Adjust.	\$ 2.20	6" Regular.....
Eclipse	200-3	" " " "	.20	8" " " " "
XXX	211-18	" " " " " Adjust. B	.95	13.10
Marlo	221-29	" " " " " A	1.65	11.25
Eclipse	208	Comb. Bell & Buzzer	1.25	1.25
Competition	402	" " " " " A	1.00	1.00
Midget	331-34	All Nickled Bell	1.50	1.80
P. R.	240	Watch Case Buzzer	1.25	1.25
P. R.	238	Monitor	....	....
			4"	Cow or Sleigh

Name	No.	Description	Buzzer	2 $\frac{1}{4}$ "	3"	4"	Tea
Single Coil Bell No. 31 & 32...			\$.60	\$.65	\$.80	\$1.50	\$1.00
Two Coil Bell No. 311-321...			.55	.60	.65	.90	....
Combination Bell & Buzzer No. 331-333...			.90	.90	....	....	....
Flush Type Buzzer No. 31S...			1.25	....	....	....	....

SKELETON BELLS

Any Make

	2 $\frac{1}{4}$ "	3"	4"	5"	6"	8"	10"	12"

<tbl_r cells="9"

Push Buttons, Etc.

PUSH BUTTONS, TREADS, SPRINGS

STANDARD PUSH BUTTONS AND TREADS

Description	Ans.	Edw.	Fara.	P&W	Price
Round 1 1/4" and 1 3/4" Stamped Brass.....	506	603	SP51	29	.40-.25
Round 2 1/4" Stamped Brass.....	527	600	SP50	27	.25
Round 2 1/4" with Card Holder Brass.....	507	601	SP57	25	.40
Rectangular 4x2" S. B. Brass.....	604	SP54	55	.40	
Rectangular 3 1/4x1 1/2" S. B. Brass.....	605	SP53	50	.40	
Oval 2 1/4x1 1/2" S. B. Brass.....	606	SP55	50	.30	
Oval 4 1/4x2 1/2" S. B. Brass.....	609	SP56	50	.45	
Pear Push Buttons—Wood or Composition.....	505	67	5-0	3	.60
Pear Push Buttons—Metal, Nickel or Brass.....	68	MP8	50	.85	
Desk Buttons—1/4" Hole—Nickel.....	562	59	7A	50	.75
Desk Buttons—1/4" Hole—Nickel.....	63	59	7A	50	.65
Desk Buttons—1/4" Hole—Nickel.....	D38	620	5A	50	.45
High Voltage 1/2" Hole—110 Volts.....	85	855	2.40		
Table Clamp with Push Button.....	571	206	TCA	50	1.00
Floor Pushes Combination Nickel.....	560	235	CFP2	50	1.00
Floor Treads—"Daisy" "Dixie".....	800	290	FT1	50	1.50
Wood Push Buttons.....					.20

COMPOSITION MOULDED PUSH BUTTONS

Round Plain 1 1/4" Diam.	\$0.35	Rectangular Plain 1 1/4x3 1/4"	\$0.45
Octagon 1 1/4x1 1/4" Diam. ....	.40	Rectangular Fancy 1 1/4x3 1/4" ....	.70
Oct. Card Holder 2 1/4x2 1/4" Diam. ....	.50	Rec. Double Card Holder.....	.90

DESK PUSHES—COMPOUND
With Buttons

Make and Description	Button	Button	Button	Button	Button	Button
Edw. #146-Bakelite Block.....	\$2.10	\$2.50	\$3.20	\$3.65	\$4.50	\$5.25
Edw. #197 Less Cord Bakelite.....	3.50	4.75	6.00	7.25	8.50	9.75
Edw. #197 with 6' Cord Bakelite.....	4.05	6.10	7.75	9.45	11.15	12.85
Edw. #190 Wood—Less Cord.....	4.00	5.35	6.60	8.10	9.40	10.80
Edw. #190 Wood with Cord.....	4.45	6.65	8.35	10.30	12.05	13.90
Fara. #4C Wood Less Cord.....	2.00	2.30	2.60	3.05	3.50	3.90
Fara. #2A Wood Less Cord.....	4.90	7.00	8.50	10.60	12.40	13.80
Fara. B.D.P. Bakelite Less Cord.....	3.50	4.75	6.00	7.25	8.50	9.75
Fara. M.D.P. All Metal Less Cord.....	6.00	11.00	16.00	21.00	26.00	31.00
P&W #44 Wood Less Cord.....	2.60	2.80	3.50	4.30	4.85	5.60
P&W #45 Wood Angle Less Cord.....				13.00		13.95
P&W #12 Wood Less Cord.....	3.30	4.25	5.45	6.00		

DOOR AND WINDOW SPRINGS

Door Springs	Window Springs
Open Circuit Door Spring.....	\$0.40
Closed Circuit Door Spring.....	.50
Open Circuit Make and Break....	.50
Open Circuit Door Trip.....	1.00
	Open Circuit Transom.....

OTHER PUSH BUTTONS

Ansonia

Round Stamped	Price	Round Cast	Price
514 1 1/4" Loose Back.....	\$0.30	511 1 1/4" Loose Back.....	\$0.90
515 2 1/4" Loose Back.....	.40	512 2 1/4" Loose Back.....	1.00
513 1 1/4" Loose Back.....	.95	508-10 2 1/4" Loose Back.....	1.00
579 1 1/4" Flush Push.....	1.00	540 2 1/4" Loose Back.....	.60
E33 1 1/4" Flush Push.....	1.00	550 2 1/4" Loose Back.....	.85
		570 2 1/4" Loose Back.....	.75

Other Ansonia Push Buttons, Etc.

F-33	Stamped Flush Push.....	\$0.70	545 Oblong 2 Gang for Cards.....	\$1.85
G-33	Stamped Diamond Push.....	.70	545 Oblong 3 Gang for Cards.....	2.65
521-524	Stamped Push.....	.75	545 Oblong 4 Gang for Cards.....	3.65
528-534	Stamped Push.....	.95	546 Oblong 1 Gang.....	1.65
536-537	Stamped Push.....	1.00	547 Oblong 2 Gang.....	1.50
538	Stamped Oblong Push.....	1.25	548 Oblong 1 Gang.....	.75
541	Oblong for Card.....	1.65	549 Oblong 1 Gang.....	1.20
543	Oblong 2 Point.....	1.25	577 Diamond Push.....	.70
544	Oblong for Card.....	1.20	578 Diamond Push.....	.75
Combination Floor Pushes Complete	573.....			2.50
Combination Floor Pushes Complete	575.....			2.65
700 1 Point Wood Base Switch.....				.45

Edwards

Round Desk Buttons	Oblong Push Buttons
621—1 1/4" Hole.....	\$1.40
622—1 1/2" Hole.....	1.45
625—1 3/4" Hole.....	.50

Partrick & Wilkins

Round Push Buttons	
Stained Wood Push #2.....	\$0.15
Oak Wood Regular #1.....	.35
Oak Open, Closed and Dbl. Cont. #1.....	.65
Oak Triple Contact #1.....	.90
Cast Brass 1 1/4" Diam. #8.....	.70
Cast Brass 2 1/4" Diam. #9.....	.75

Oblong Pushes

16 Cast Brass 4 1/4x1 1/4" Screw Cap.....	\$1.55
31 Cast Brass 5x2 1/2" Screw Cap.....	2.30
44 Cast Brass 4x2" Screw Cap.....	1.40
708 Wrought Push and Speak 1 Pce.....	1.35
907 2 Button and Card Holder.....	2.15
908 3 Button and Card Holder.....	2.95
909 4 Button and Card Holder.....	4.55

OTHER PUSH BUTTONS—Continued

Partrick & Wilkins

Desk Push Buttons

Car Push 1 1/2" Hole Black Center.....	.45
Multiple 1 1/2" Hole Black Center.....	1.35
Pony 1 1/2" Hole Black Center.....	1.85
Pear Shape Pushes	
Compound Maple 2 Button.....	.82
Compound Maple 3 Button.....	3.00
#4 Fancy Pear Two Piece.....	.25
Wood Rosettes for above.....	.40

MULTIPLE PUSH BUTTONS

Couch "Pushrites"

With Card Holders

Number of Buttons	Plain Base Number	Wood Base Price	Base Type	Flush Brass Plate Number	Type
4	7900	\$3.35	7980	\$3.75	
6	740	4.60	780	5.20	
8	7910	5.80	7990	6.65	
12	7921	8.30	79010	9.60	
16	7930	10.80	79020	12.45	
20	793	13.30	7902	15.40	

COUCH UNMOUNTED PUSH BUTTONS "WORKRITES"

No. 97 for 1 1/2" Hole.....	\$0.50
Adaptor No. 0684 for same.....	.05

BRACKETS FOR INSULATORS

WOOD BRACKETS

	Each		Each
1 1/4" x 2" x 10"	\$1.10	1 1/4" x 2" x 12"	\$1.10
1 1/4" x 2" x 12"	.10	2" x 2 1/4" x 12"	.13
1 1/4" x 2 1/4" x 12"	.10	2" x 2 1/2" x 12"	.12

PINS

	Each		Each
Locust 1 1/4" x 8"	.10	Locust 1 1/4" x 9"	.12
Oak 1 1/4" x 8"	.05	Oak 1 1/4" x 9"	.08

HOUSE BRACKETS WITHOUT INSULATORS

Peirce

No.	Light Type Points	Heavy Type Points	Corner Type Points	Price
1607	One .25	One .40	One .30	
190	Two .55	Two .80	Two .55	
191	Three .90	Three 1.10	Three .80	

WIREHOLDERS WITH INSULATORS

Peirce

No.	Wires	Length	Space	Price
183	1	6 1/2"	0	\$4.40
286	2	12 1/2"	6	.80
383	3	12 1/2"	3	.95
386	3	18 1/2"	6	1.20

SECONDARY RACKS WITH INSULATORS

Peirce

No.	Light Type Wires Space	Heavy Type Wires Space	Price	
276	2 5"	1.90	278 3 5"	\$1.30
376	3 6"	1.30	378 3 6"	2.15
1276	2 6"	.85	1278 2 6"	1.20
1376	3 6"	1.20	1374 3 4"	1.35
2768	2 8"	.90	1378 3 8"	2.00
3768	3 8"	1.30		

INSULATORS ONLY FOR ABOVE BRACKETS

Peirce

355 Insulator.....	\$1.18	1602 Insulator.....	\$1.12
356	.25	1603	.10

HOUSE BRACKETS WITHOUT INSULATORS
 National Elec. Products

Light Type			Heavy Type			Corner Type		
No.	Points	Each	No.	Points	Each	No.	Points	Each
108-10	1	.25	109-10	1	.45	111-10	1	.30
108-26	2	.55	109-26	2	.80	111-26	2	.60
108-29	2	.60	109-29	2	.85	111-29	2	.60
108-36	3	.95	109-36	3	1.15	111-36	3	.85

HOUSE RACKS WITH INSULATORS
 National Elec. Products

Light Type			Heavy Type				
No.	Points	Length	No.	Points	Length		
104-10	1	5 $\frac{1}{4}$	\$.45	101-24	2	9 $\frac{1}{4}$	\$ 1.10
104-26	2	11 $\frac{1}{4}$	.60	101-28	4	18 $\frac{1}{4}$	1.65
104-33	3	11 $\frac{1}{4}$	1.00	101-34	3	18 $\frac{1}{4}$	1.75
104-36	2	18	1.25	101-38	2	21 $\frac{1}{4}$	2.40
104-53	5	18	1.60	101-44	4	17 $\frac{1}{4}$	2.20
104	Insulator Only	.12	101	Insulator Only	.18		2.70

WIREHOLDER ACCESSORIES

National Elec. Products

No. 5000 Corner Chair.....	\$.13	No. 5040 Break Arm Strap.....	\$.14
No. 5020 Insulator.....	.18	No. 5051 " " Bolt.....	.20
No. 5021 U Bolts & Nuts..	.10	No. 5052 T Head Screw.....	.03

SINGLE POINT WIREHOLDERS

National Elec. Products

No.	No.	No.	No.
5211.....	\$.25	5311.....	\$.20
5214.....	.35	5314.....	.30
5215.....	.45	5315.....	.35

WIREHOLDERS WITH INSULATORS

National Elec. Products

For One Wire	For Two Wires	For Three Wires			
No.	No.	No.			
No. 5011.....	\$.28	No. 5002.....	\$.60	No. 5003.....	\$.85
No. 5001.....	.25	No. 5012.....	.55	No. 5023.....	.80

WIREHOLDERS WITH INSULATORS

National Elec. Products

No.	Light Type	Length	Each	No.	Heavy Type	Length	Each
105-1X	1	"	\$.25	105-1	1	"	\$.60
105-10	1	6"	.30	106-10	1	6"	.65
105-26	2	10 $\frac{1}{4}$ "	.35	106-26	2	11 $\frac{1}{4}$ "	1.25
105-29	2	13 $\frac{1}{4}$ "	.50	106-29	2	14 $\frac{1}{4}$ "	1.30
105-34	3	13 $\frac{1}{4}$ "	.85	106-36	3	17 $\frac{1}{4}$ "	1.85
105-56	3	16 $\frac{1}{4}$ "	.85	106-36X	3	17 $\frac{1}{4}$ "	1.05
105	Insulator Only	.12	106	Insulator Only	.10		

B-SUNDRIES, BOLTS, ETC.
CARRIAGE BOLTS

Galvanized

		Length						
		3"	3 $\frac{1}{4}$ "	4"	4 $\frac{1}{4}$ "	5"	5 $\frac{1}{4}$ "	6"
5 $\frac{1}{2}$ " Diam. Each..	\$.05	\$.06	\$.07	\$.08	\$.08	\$.09	\$.10	\$.12
5 $\frac{1}{2}$ " " " ..	.08	.09	.10	.11	.12	.13	.15	.20

Diam.	Length	3"	3 $\frac{1}{4}$ "	4"	4 $\frac{1}{4}$ "	5"	5 $\frac{1}{4}$ "	6"	6 $\frac{1}{4}$ "	7"	8"	10"	12"	14"	16"	18"
" Each.....	\$.05	\$.06	\$.07	\$.08	\$.08	\$.09	\$.10	\$.12	\$.12	\$.14	\$.15	\$.16	\$.18	\$.20	\$.21	\$.23
" " "	.06	.09	.10	.11	.12	.13	.15	.18	.20	.21	.23					
" " "	.12	.13	.14	.15	.16	.18	.20	.22	.25	.27	.30					
" " "	.15	.16	.17	.19	.20	.25	.26	.29	.32	.35	.45					

STOVE BOLTS

Round or Flat Head

Length	Up to 1"	1 $\frac{1}{4}$ " to 1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ " to 2 $\frac{1}{4}$ "	2 $\frac{1}{4}$ " to 3 $\frac{1}{4}$ "	3 $\frac{1}{4}$ " to 4"
Long	Long	Long	Long	Long	Long
5 $\frac{1}{2}$ " Long Price Each.....	\$.10	\$.10	\$.12	\$.15	\$.20
5 $\frac{1}{2}$ " " " ..	.10	.10	.12	.20	.30
5 $\frac{1}{2}$ " " " ..	.10	.10	.10	.15	.25
5 $\frac{1}{2}$ " " " ..	.11	.11	.12	.12	.18
5 $\frac{1}{2}$ " " " ..	.13	.13	.14	.14	.14

 NOTE: For Brass Toggle Bolts—2 $\frac{1}{2}$ times above prices.

ROUND FIXTURE BLOCKS
 Solid Half or Full Plowed

3" x 4" Round	4 x 5" Round	5 x 6" Round
\$.12	\$.15	\$.18
Ceiling Button—P & S Porcelain No. 170—Each.....		\$.12
Switch Bases—See Snap Switches Page PL-19.		

CORDS, FIXTURE, LAMP AND HEATER
SINGLE FIXTURE CORD

Single Lamp Cord	Type	Price Per Foot	No. 18	No. 16	No. 14	No. 12
Single Cotton Covered Cord—Light F-64	P	\$.01	\$.02	\$.02 $\frac{1}{2}$	\$.03	\$.03
Single Cotton Covered Cord—Heavy F-62	P	.01 $\frac{1}{2}$	.02	.03	.04	\$.04
Single Artificial Silk Cord—Light... F-64	P	.01 $\frac{1}{2}$	.02 $\frac{1}{2}$	.03	.04	....
Single Artificial Silk Cord—Heavy... F-62	P	.01 $\frac{1}{2}$	.02	.03	.04	....

DOUBLE LAMP CORD

Regular Lamp Cord	Type	Price Per Foot	No. 18	No. 16	No. 14	No. 12
Cotton Covered Twisted Pair.....	C	\$.02 $\frac{1}{2}$	\$.03	\$.05	\$.06	\$.07
" " Parallel Pair.....	PO	.02 $\frac{1}{2}$	.04	.06	.08	....
" " Twisted Parallel Pair.....	PD	.03	.05	.07	.09	....
Artificial Silk Twisted Pair.....	C	.02 $\frac{1}{2}$	.04	.06	.08	....
" " Parallel Pair.....	PO	.03	.05	.07	.09	....

REINFORCED CORD

Not Asbestos	Type	Price Per Foot	No. 18	No. 16	No. 14	No. 12
Cotton Covered Light Type 1 $\frac{1}{2}$ PS	P	\$.03	\$.04	\$.07	\$.10	\$.13
" " Heavy Type 1 $\frac{1}{2}$ P	P	.04	.05	.07	.10	....

Weatherproof Light Type 1 $\frac{1}{2}$ PSWP	PSWP	Price Per Foot	No. 18	No. 16	No. 14	No. 12
" Heavy Type 1 $\frac{1}{2}$ PWP	PWP	.04	.05	.07	.10	....

HEATER CORD

Description	Type	Price Per Foot	No. 18	No. 17	No. 16	No. 14	No. 12
Brewery Cord.....	CB	\$.03	\$.04	\$.06	....	....	....
Canvasite Cord.....	CC	.04 $\frac{1}{2}$	.05	.07	....	....	....
Deck Cable.....	PWP	.05	.06	.08	....	....	....
Packinghouse Cable.....	PKWP	.05	.06	.08	....	....	....
Stage & Theatre Cable... T	T	.05	.06	.08	\$.14	\$.16	\$.18

Note—These prices are based on less than coil lot trade prices.

CONDUCTING BELL CORD

Spun Silk

Number of Conductors	2	3	4	5	8	10	14	18
Price Per Foot.....	\$.08	\$.18	\$.20	\$.21	\$.28	\$.35	\$.68	\$.88

Note—For Armored Lamp Cord See Page PL-9.

CORD & WIRE CONNECTORS

SMALL FIXTURE & WIRE CONNECTORS

Solderless

Insulated Solderless Wire or Fixture Connectors Similar to "Simplex"
"Wirenuts" "Marr" "NoTorch" "Wirelets" "Ideal" "Wiremold" Etc.—each \$1.10
Non-Insulated Solderless Wire Connectors—2 Screw—All Metal..... .10

SET SCREW CONNECTORS

Round Brass

	No.	No.	No.	No.	No.
Wire Size	12-14	10	8	6	4
Divided Wall—2 Screws.....	\$.06	\$.08	\$.09	\$.10	\$.14
" " 4 "	"	"	.16	.12	.13
Hole Thru 2 "	"	"	"	.13	.15
" " 4 "	"	"	"	"	.17
Wire Size					
Divided Wall—2 Screws.....	\$.15	\$.26	\$.32	\$.50	\$.80
Hole Thru 2 "	"	"	.20	.24	.30
" " 4 "	"	"	.22	.28	.30
	No.	No.	No.	No.	No.
	2	1/0	2/0	3/0	4/0

SOLDERLESS CONNECTORS

Dossert or Penn-Union

No.	No.	No.	No.	
Size Cond.....	3 to 1	1/0	2/0	
2 Way L's.....	\$.75	\$.80	\$ 1.00	\$ 1.20
Cable Taps.....	1.05	1.20	1.40	1.75
3 Ways & Y's.....	1.05	1.20	1.40	1.75
Lugs FB Ang.....	.55	.60	.70	.90
	1.0	1.10	1.20	1.40
				1.85
				2.40

CORD & MOTOR CONNECTORS

ARROW	Complete	Body Only	Cap Only	Price	
	No.	No.	No.	No.	
Midget Comp.	8238	\$.50	....	....
" Arrotex	8239	.75	....	....
Motor Conn.	RP-8221	.55	8221	\$.45	
" "	RL-8221	.60	8221	.45	
" "	RA-8222	.55	8222	.45	
" "	RM-8222	.65	8222	.45	
" "	TM-8222	.70	8222	.45	
" "	RH-8224	.90	8224	.60	
" "	RG-8281	.90	8281	.60	
Bryant	8334 & 35	.90	....	....
Motor Midget	KR-130	.60	130	.45	
" Conn.	KG-103	.70	103	.45	
" KT-130	.55	130	.45	KT	
GE	1346-1347	.90	1647	.45	
Cord Connector	1346-1347	.90	1647	.45	
Hubbell	Cord Connector	.80	5574	.55	
" "	6116	.70	6118	.55	
" "	6179	.75	6630	.55	
" "	6180	.65	6630	.55	
" "	5518	.80	5574	.55	
" "	7083	1.35	7084	.85	
" "	7090	1.80	7091	1.10	
Weber	6408	1.25	6409	.85	
Cord Connector	2274	.60	.74	.45	
Wirt	Cord Connector	.56	.55	2200	.20

NOTE: For Attachment Plugs and other caps—See Pages PL-16 & PL-17

E-SUNDRIES

EXTENSION CORDS—MADE UP

With Plug & Socket, but Guards-Lamps & Handles Extra	Length in Feet	With Lamp Cord and Key	With Reinforced Cord and Key Socket	With Artificial Silk Cord and Key Socket	Twist. or Paral.	No. 18	No. 16	No. 18	No. 16
4 Foot.....	\$.75	\$.80	\$.85	\$.80	\$.85				
6 "	.80	.90	.95	.90	.95				
8 "	.85	1.00	1.05	1.00	1.05				
10 "	.90	1.10	1.20	1.10	1.20				
12 "	.95	1.20	1.30	1.20	1.30				
14 "	1.00	1.30	1.45	1.30	1.45				
16 "	1.05	1.40	1.65	1.40	1.55				
18 "	1.10	1.50	1.65	1.50	1.65				
20 "	1.15	1.60	1.75	1.60	1.75				
22 "	1.20	1.65	1.85	1.65	1.85				
24 "	1.25	1.75	1.95	1.75	1.95				
Length in Feet		With All Rubber Cord and Weatherproof Socket							
		Light	Heavy						
4 Foot.....	No. 18	No. 16	No. 18	No. 16	No. 16				
6 "	\$ 1.00	\$ 1.10	\$ 1.15	\$ 1.15	\$ 1.25				
8 "	1.20	1.30	1.40	1.40	1.50				
10 "	1.35	1.50	1.65	1.65	1.75				
12 "	1.50	1.70	1.90	1.90	2.00				
14 "	1.75	1.90	2.15	2.15	2.25				
16 "	1.90	2.10	2.40	2.40	2.50				
18 "	2.10	2.30	2.65	2.65	2.75				
20 "	2.25	2.50	2.90	2.90	3.00				
22 "	2.40	2.70	3.15	3.15	3.25				
24 "	2.65	2.90	3.40	3.40	3.50				
	2.80	3.10	3.65	3.65	3.75				

ELBOWS & BENDS

For Rigid Conduit

Size	1/2"	3/4"	1"	1 1/4"	1 1/2"
Black.....	\$.15	\$.19	\$.28	\$.39	\$.52
Galv.....	.17	.22	.32	.43	.58

Size	2"	3 1/2"	3"	3 3/4"	4"
Black.....	\$.88	\$ 1.40	\$ 3.70	\$ 8.25	\$ 9.50
Galv.....	.96	1.60	4.20	9.25	10.00

EXPANSION SHIELDS & ANCHORS

(Ackerman-Johnson—Dryvin—Star—Diamond—Packtite or Similar)

Screws Not Included.		Hammer Drive Anchors With Nail	
Size Screw or Bolt	Price	Size of Shield	Price
6-32 Screw.....	\$.06	1/8" x 1/4"	\$.05
8-32 "	.07	1/8" x 1/4"	.07
10-24 "	.08	1/4" x 1/4"	.08
12-24 "	.10	1/4" x 1/2"	.09
1-4x20 Bolt.....	.12	1/8" x 1/4"	.10
5-16x18 "	.15	1/8" x 1/4"	.12
3-8x16 "	.18	1/8" x 2 1/2"	.14
7-16x14 "	.20	1/8" x 2 1/2"	.16
1-2x13 "	.20	1/8" x 3 1/4"	.20
5-8x13 "	.30	1/8" x 3 1/4"	.22
		1/2" x 3 1/2"	.25

Multi-Size Screw Anchors

Length of Anchor.....	Screw Size
5 to 10	5 to 10
Price Without Screw.....	\$ 0.04

LAG SCREW ANCHORS (Diamond or Similar)

Takes Lag Screw.....	1/4"	5/16"	3/8"	1/2"
Price Without Lag Screw.....	\$.15	\$.15	\$.25	\$.35
Price Without Lag Screw.....	\$.40	\$.60	\$.90	\$ 1.00

FUSES

PLUG FUSES

Standard Plug Fuses—Any Make—\$.07 each or 5 for \$.35
(Some Manufacturers put these fuses up 4 in a box, in which case they should be retailed at 4 for \$.25.)

ENCLOSED FUSES, NON-RENEWABLE

Non-Indicating Indicating

Amps.	250 Volts	600 Volts	250 Volts	600 Volts
Fuse	Fuse	Fuse	Fuse	Fuse
1 to 30	\$.10	\$.30	\$.20	\$.40
35 to 60	.20	.40	.35	.65
70 to 100	.50	1.10	.95	1.75
110 to 200	1.20	1.85	1.25	2.90
225 to 400	2.15	4.10	2.35	6.85
450 to 600	4.10	6.00	3.35	9.25
650 to 800	8.95	11.00	13.85	17.85

RENEWABLE FUSES

Fuses Links

Amps.	350 Volts	600 Volts	250 Volts	600 Volts
1 to 30	\$.50	\$ 1.10	\$.03	\$.05
35 to 60	1.00	2.00	.05	.06
65 to 100	2.00	3.00	.10	.10
110 to 200	4.00	8.00	.15	.15
225 to 400	7.00	11.00	.30	.30
450 to 600	11.00	16.00	.60	.60

OPEN LINK FUSES

Small Wire Type

Size in Amps.	1 to 30	35 to 60	65 to 100
Numbers.....	00-0-1-2-3	2-3-5	5
Price Each.....	\$.10	\$.14	\$.20
Large Strip Type			
Size in Amps.	25-100	110-200	225-400
Numbers.....	7	7 to 16	10 to 16
Price Each.....	\$.20	\$.30	\$.60
Size in Amps.	425-600	600-800	800-1500
Numbers.....	10 to 16	28	40
Price Each.....	\$ 1.00	\$ 1.75	\$ 5.55

STAMPED SHEET METAL LINK FUSES

Type of Link.....	B	C	D	E-F-H-I-L-M
C to C Distance.....	1/2"	3/4"	3 1/2"	See Catalog
Price Each.....	\$.11	\$.11	\$.16	\$.30



The Redskins thought it White Man's Magic . . . *but it was only a Trusty Colt*

Texas Jack Omohundro, famous scout, plainsman, Indian fighter and companion of Buffalo Bill, had ridden out from the old River Fort to hunt alone. Six Indian warriors on hardy ponies galloped toward him. Behind his dead horse, Jack raised his Colt and fired, dropping an Indian. Crack! went his pistol again, picking off a mustang. A third shot brought down another Indian. The redskins, not accustomed to a repeating gun, were amazed, thinking it some new magic of the palefaces, and Texas Jack made his escape.

The only magic about a Colt was the marvelous care and watch-like precision used in

its manufacture—the same care that prevails today in producing the Colt-built NOARK line of safety switches and meter protective devices. To manufacture things mechanical has always been the Colt policy. Colt workmen are trained to this end. Engineering thinking in the Colt organization concentrates on mechanical problems. Special machinery is directed to manufacture products of a mechanical nature.

With this background it is only natural that NOARK devices became a part of the Colt family, and that Colt protection was made available to the electrical industry.



COLT'S PATENT FIRE ARMS MFG. CO.,

Established 1836

THE NOARK QUAD BREAK SWITCH

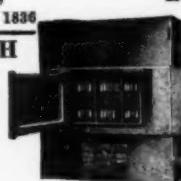
... in that it does things never done before. But a careful study of the results will prove, as was the case half a century ago, that the only magic in Colt products is the marvelous care and watch-like precision used in their design and manufacture.

An inspection of the new Colt-Noark Quad-

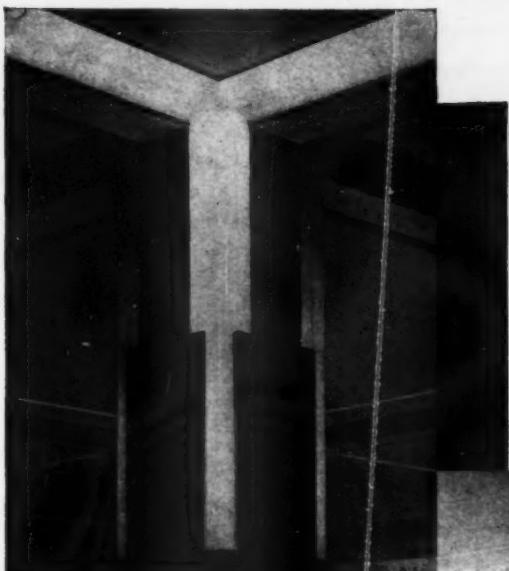
Electrical Division, HARTFORD, CONN., U.S.A.

Electrical Division 1886

ALSO HAS MAGIC PERFORMANCES . . .



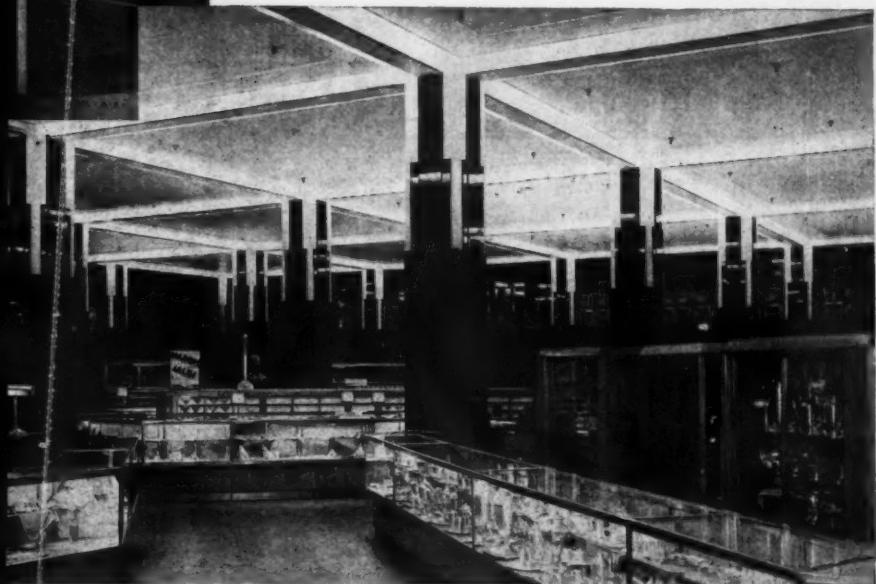
break switch will reveal superiorities of design and performance that could only be described by extravagant phrases which we could not ask you to believe without proof. Send for Catalog "G" and detailed description. "The Rampant Colt," an interesting publication mailed on request.



This closeup of the ceiling with only one panel illuminated shows the careful design and finish of this successful illumination.

THE NEW first floor

KAUFMAN'S DEPARTMENT
STORE • PITTSBURGH
ILLUMINATED BY FRINK



The alteration to the first floor of the Kaufman Department Store makes it in many ways the most modern interior in America, and points out the possibilities open to you through the use of Frink lighting equipment.

The general illumination is accomplished by means of a continuous specially designed Frink reflector behind a glass enclosure, shaped to fit the architectural motif of the room. The result is a continuous moulding of glass. This glass has been so developed and arranged as to join with vertical members of the same material on the corners of the column, thereby making a complete design and tying the beams definitely with the supporting columns.

You will find especially in Frink Multilite many opportunities to develop new and profitable business. For complete information send for our Circular 79-B.

The
FRINK
CORPORATION
2310 BRIDGE PLAZA SOUTH
LONG ISLAND CITY, N. Y.



RESEARCH

Measured in Terms of Sales Volume

GREATERT economy in the generation of electric power... more efficiency in its transmission and distribution... new and improved electrical appliances to popularize its use... General Electric Research Laboratories, the largest in the world, have contributed more than any other to these present-day achievements.

Research in pure science means something very definite to you. It has made possible the industry of which you are a part. It has aided in the perfection of all the electrical merchandise that you sell. *Measured in terms of sales volume*, General Electric research has helped you to develop your business to its present size, and will continue to do so.

In addition to these advantages of General Electric research, you know that all General Electric merchandise products are *thoroughly tested for quality* before they are allowed to bear the General Electric Monogram. You can offer them to your customers with confidence that they will add to the reputation you enjoy in your community. You can use them to cash in on the enormous prestige of the General Electric name.

The General Electric Supply Corporation, with over 80 wholesale warehouses strategically located throughout the United States, makes these direct and indirect benefits of General Electric Research *immediately available to you*. All communities are reached within a few hours—many in minutes. When you have an electrical need—write!

Join us in the General Electric Program, broadcast every Saturday evening on a nation-wide N.B.C. network.



...to serve better the electrical needs of America

GENERAL  **ELECTRIC**
SUPPLY CORPORATION

GENERAL OFFICES

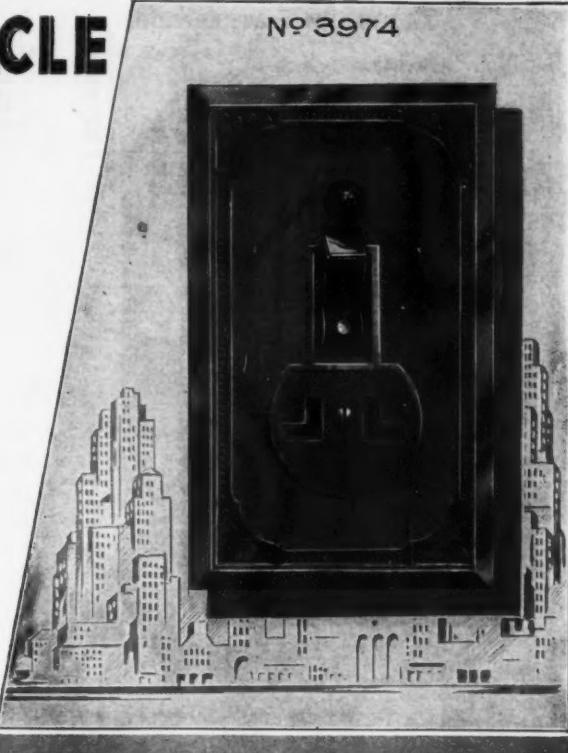
BRIDGEPORT, CONNECTICUT

SWITCH & RECEPTACLE COMBINATION

A DOUBLE-
CONVENIENCE

H&H
UNIFIED
DEVICE

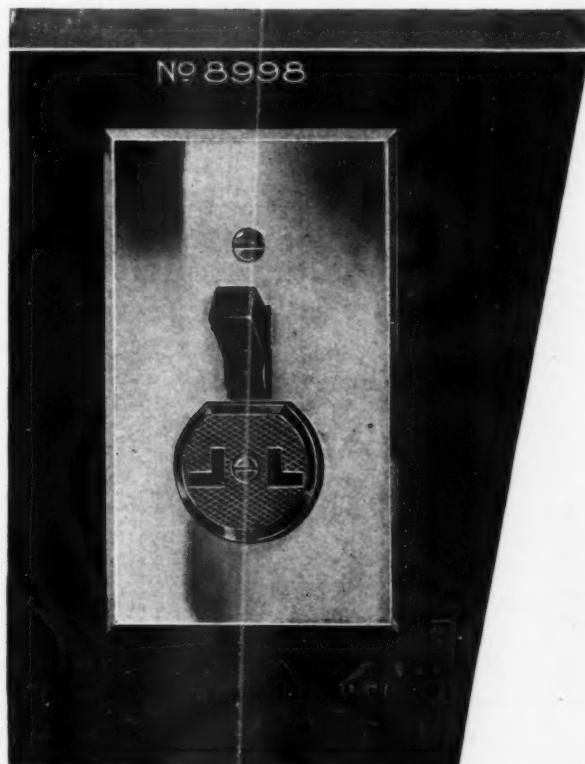
No 3974



No 8998



Wired in half the TIME . . . and with less MATERIAL than required to install two devices separately. Gives your customer twice the CONVENIENCE of switch or receptacle alone. Puts the two devices in a single wall box . . . puts them behind one wall plate. . . . As usually wired, Switch controls the lights, while Receptacle functions separately for appliances. (Or switch can be wired to control current in receptacle) . . . No. 3974 has plate of BAKELITE, with ribbed surface and art border. No. 8998 has .060" brass plate. Complete line ready: single- or double-pole switches, in ratings you require. Refer to data in Catalogue "U" to fully apply this double-value development on your jobs. » »



HART & HEGEMAN DIVISION
THE ARROW-HART & HEGEMAN ELECTRIC CO.
HARTFORD, CONN. MAKERS OF ELECTRIC SWITCHES SINCE 1890

Fittings, Threadless

REDUCING BUSHINGS

	Large End	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$	$1\frac{3}{4}''$	2"	$2\frac{1}{4}''$	3"
Small End	$\frac{3}{4}''$	\$4.41	\$5.53	\$7.71	\$8.80	\$1.05	\$1.40	\$1.55
"	$\frac{1}{2}''$	.60	.76	.90	1.19	1.50	1.67	
"	1"		.81	.94	1.29	1.60	1.86	
"	$1\frac{1}{4}''$			1.13	1.43	1.90	2.42	
"	$1\frac{1}{2}''$				1.51	1.90	2.42	
"	2"					2.37	2.97	
"	$2\frac{1}{4}''$							3.26

FITTINGS, SPRAGULETS, WIRELETS OR T & B

BRANCH TYPE Series 48

Description	G.E., Steel City or T & B Numbers	Price Each
Branch Body Rectangular for $\frac{3}{4}''$ & $\frac{3}{4}''$ Conduit...	SP-48241	\$.25
Cover Metal Flat Closed...	SP-48C1	
" " " with $\frac{3}{4}''$ Knockout...	SP-48C6	.10
" " " Pendant Type with $\frac{3}{4}''$ Bushing...	SP-48C8	.12
" " " Pendant Type with $\frac{3}{4}''$ Bushing...	SP-48C11	.16
" " " with $\frac{3}{4}''$ Male or Female Nipple...	SP-48C22 & 23	.30
" " " with $\frac{3}{4}''$ Male or Female Nipple...	SP-48C24 & 25	.40
Cover Porcelain with one or two wire Holes....	SP-48C75 & 76	.14
" " " three or four wire Holes....	SP-48C77 & 78	.15

SHALLOW TYPE Series 14

Description	G.E., Steel City or T & B Numbers	Price Each
Body Octagonal Shape for $\frac{3}{4}''$ or $\frac{3}{4}''$ Conduit....	SP-14241	\$.35
Cover Metal Flat Closed...	SP-14C1	
" " " Raised with $\frac{3}{4}''$ Knockout...	SP-14C7	.10
Cover Metal Flat Pendant with $\frac{3}{4}''$ Bushing...	SP-14C8	.12
" " " with $\frac{3}{4}''$ or $\frac{3}{4}''$ Male Nip...	SP-14C11	.16
" " " For all surface Mounted Devices...	SP-14C22-24	.30
" " " Raised for Sign Receptacles...	SP-14C28	.14
" " " Flat for all Fluted Devices...	SP-14C31-34-35-36	.12
" " " Porcelain with one or two holes...	SP-14C39	.35
" " " Three or Four holes....	SP-14C75 & 76	.14
	SP-14C77 & 78	.15

DEEP TYPE Series 34

Description	G.E., Steel City or T & B Numbers	Price Each
Body Deep Octagonal Shape $\frac{3}{4}''$ & $\frac{3}{4}''$...	SP-34461	\$.45
Cover Metal Blank Flat...	SP-34R1	.14
Cover Metal For Push Button Switch...	SP-34R2 & 3	.14
" " " Single Receptacle...	SP-34R5	.14
" " " Standard Duplex Receptacle...	SP-34R7	.14
" " " For GE 30 Amp. Polarized Plug Recp.	SP-34R13	.16
" " " GE Tumbler Switches...	SP-34R14	.14
" " " Hubbell and H&H Tumbler Switches.	SP-34R15	.18

COUPLINGS

SP-1410 Complete Coupling for $\frac{3}{4}''$ Conduit.....	Price
SP-1420 " " "	.24

FITTINGS, ENTRANCE OR SERVICE

"ADAPTI"

	$\frac{3}{4}''$	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$
Ext. Ells with Cov. Ser. 1100.....	\$4.45	\$5.50	\$6.60	\$1.05
" Fitt. with Cov. Ser. 2700.....	.45	.55	.65	1.15
Angle End Fitt. with Cover Ser. 2700...	.50	.55	.65	1.20
Signal Ent. Caps No. 2810-2811.....	.75	2"	2.80	3"
	$1\frac{1}{4}''$	2"	$2\frac{1}{4}''$	3"
Ext. Ells with Cov. Ser. 1100.....	\$1.50	\$3.00		
" Fitt. with Cov. Ser. 2700.....	1.90	3.00	\$6.25	\$7.65
Angle Ent. Fitt. with Cov. Ser. 2700....	2.00	3.10	6.30	7.50
Signal Ent. Caps No. 2810-2811.....				

"APPLETON"

	$\frac{3}{4}''$	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$
FEB Elbow with Cov. 1700 & 1900....	\$5.50	\$6.60	\$7.70	\$1.70
FB Elbow with Cov. 1713 to 16.....	.35	.50	.60	
FC End Fitt. with Cov. 1723-33-43.....	.20	.25	.30	
AY Angle Fitt. 1950 to 54.....	.55	.60	.70	1.95
LAY End Fitt. with Cov. 1790 to 94.....	.55	.60	.75	1.35
	$1\frac{1}{4}''$	2"	$2\frac{1}{4}''$	3"
FEB Elbow with Cov. 1700 & 1900....	\$1.90	\$3.25	\$7.50	\$0.00
FB Elbow with Cov. 1713 to 16.....				
FC End Fitt. with Cov. 1723-33-43.....				
AY Angle Fitt. 1950 to 54.....	2.35			
LAY End Fitt. with Cov. 1790 to 94....	1.75			

"BEND HICKS"

	$\frac{3}{4}''$	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$
Bend Hicks Galvanized.....	.50	\$6.60	\$8.65	\$1.75
	$1\frac{1}{4}''$	2"	$2\frac{1}{4}''$	3"
Bend Hicks Galvanized.....	\$2.15	\$4.10	\$6.60	\$8.25

"CAP-SWIVEL-LET"

	$\frac{3}{4}''$	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$	$1\frac{1}{2}''$	2"
"A" Inside Work #1010 to 1064.....	\$0.20	\$0.25	\$0.30	\$0.55	\$0.85	\$1.30
"BW" Threadless Fitt. 4112-4134.....	.45	.50	.75			
"BW" Threaded Fitt. 2122-2124.....	.35	.45				
"FW" Outside Work 1412-1464.....	.40	.50	.65	1.05	1.80	3.00
"LB" Service Entrance 3110-3130.....	.50	.55	.65			
Type "AM" for Nipple $3\frac{1}{2}$ " Long.....	\$0.20	For Nipple $1\frac{1}{2}$ " Long.....	\$0.20			
Type "BXA" from 1600 to 1613.....		From 1614-1624.....				
From 1632-1634.....						

"CONDULETS"

Form 6

	$\frac{3}{4}''$	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$
F Type Ent. Fitt. with Porc. Cov.....	\$4.40	\$4.45	\$6.60	\$8.95
LB Type Ent. Fitt. with Metal Cov.....	.45	.50	.60	1.15
	$1\frac{1}{4}''$	2"	$2\frac{1}{4}''$	3"
F Type Ent. Fitt. with Porc. Cov.....	\$1.60	\$2.85		
LB Type Ent. Fitt. with Metal Cov.....	1.40			

"ELECTROLETS"

	$\frac{3}{4}''$	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$
FB Angle Fitt. with Cov. 713-83.....	\$4.45	\$5.55	\$7.70	\$11.10
KA End Fitt. with Cov. 1013 to 43.....	.20	.25	.35	
KB Elbow Fitt. with Cov. 1113 to 33.....	.35	.50	.60	
SLB Elbow Fitt. with Cov. 1 to 4.....	.50	.60	.75	1.85
Y Capped Elbow Y1 to 5.....	.50	.60	.65	1.75
	$1\frac{1}{4}''$	2"	$2\frac{1}{4}''$	3"
FB Angle Fitt. with Cov. 713-83.....	\$1.80	\$3.00	\$7.00	\$8.50
KA End Fitt. with Cov. 1013 to 43.....				
KB Elbow Fitt. with Cov. 1113 to 33.....				
SLB Elbow Fitt. with Cov. 1 to 4.....				
Y Capped Elbow Y1 to 5.....	2.15			

"GENERAL ELECTRIC"

	$\frac{3}{4}''$	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$
With Covers				
Ent. Caps Series 1525 to 1532	\$4.40	\$4.45	\$6.60	\$1.00
Capped Elbow Series 1470 to 1472	.45	.50	.60	
Capped Elbow Series 1480 to 1484	.50	.55	.65	1.80
Insulets Series 1610 to 1612	.15	.20	.25	
Insulets Angle Series 1640 to 1642	.30	.45	.60	
Entrance Ells 1490 to 1495	.45	.50	.60	1.15
	$1\frac{1}{4}''$	2"	$2\frac{1}{4}''$	3"
With Covers				
Ent. Caps Series 6000	\$4.45	\$5.50	\$7.70	\$1.00
B Pipe " " 16000	.45	.50	.60	1.75
B Pipe " " 1000-1310	.40	.50	.65	.85
B Pipe " " 2000 & 2100	.40	.45	.65	.75
FB Universal " " 3000	1.00	1.25	1.65	2.75
Weathercap " " 40122	.55	.65		
Service Elbow " " 19000	.40	.55	.65	1.60
A Terminal " " 10000	.40	.45	.60	1.05
Endo Terminal Series 90000	.15	.20	.25	

"GEE-VEE"

	$\frac{3}{4}''$	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$
F Service Cap Series 6000	\$4.45	\$5.50	\$7.70	\$1.00
B Pipe " " 16000	.45	.50	.60	1.75
B Pipe " " 1000-1310	.40	.50	.65	.85
B Pipe " " 2000 & 2100	.40	.45	.65	.75
FB Universal " " 3000	1.00	1.25	1.65	2.75
Weathercap " " 40122	.55	.65		
Service Elbow " " 19000	.40	.55	.65	1.60
A Terminal " " 10000	.40	.45	.60	1.05
Endo Terminal 90000	.15	.20	.25	
	$1\frac{1}{4}''$	2"	$2\frac{1}{4}''$	3"
AR End Fitt. with Bushing.....	.40	.55	.70	\$0.90
BF Angle Fitt. with Covers.....	.35	.55	.65	1.20
FA End Fitt. with Covers.....	.15	.20		
FB End Fitt. with Covers.....	.30	.45		
FF Service Fitt. with Covers.....	.40	.45	.65	1.00
FF Service Fitt. with Covers.....	.40	.45	.65	1.00
SE Service Elbow with Covers.....	.95	1.10	1.25	1.90
				2.50
				4.20
				8.45
				9.80

"T & B"

	$\frac{3}{4}''$	$\frac{3}{4}''$	1"	$1\frac{1}{4}''$

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Lamp Guards

LAMP GUARDS

Loxon

1 Key with each dozen Guards—Extra Keys 10c each					
For Lamps	Fits Socket	McGill Loxon Nos.	Price Each		
New Mazda	Brass or W. P.	1420-1420A-1420B	\$0.60		
50-60 Watt	Brass or W. P.	1425-1427A-1427B	.60		
100 Watt	Brass or W. P.	1426-1428A-1428B	.60		
150 Watt	Brass	2443	.80		
200 Watt	Brass or W. P.	2444-2446A-2446B	.85		
200 Old Style	Brass	2447	.95		
200 Old Style Weatherproof		2447A-2447B	1.00		
Reflector Type	15 to 60 Watt for Brass Sockets #1400-1443		\$0.80		
Reflector Type	15 to 60 Watt for Weatherproof Sockets #1401-1444A&B		.90		

Hubbell
Non-Locking Type

15-25-40-60

	No.	Watt	75 Watt
Closed Bottom Top & Collar for Brass Socket	5573	.45	5578 \$0.50
Open Bottom with Collar for Brass Socket	5485	.35	5487 .40
Open Bottom No Top or Collar for Brass Socket	5691	.30	5692 .35
Open for Weatherproof Socket	5693	.30	5694 .35
Closed Bottom Top & Collar with Reflector	5766	.60	.....
Open Bottom No Top or Collar Mill Type	6995-6	.35	.....

HANGERS

FOR CABLE & CONDUIT
Minerallac

Mfgs.	Conduit	Lead Covered	Price	Porcelain Bushings	Mfgs.	For RC	Price
No.	No. Size	Cable Size	Jap Fin. Giv. Fin. No.	8-2-0	1	Cable	Price
0	No. 14		\$0.07	\$1.10	1		\$1.10
1	14-14	No. 1 to 4, 0	.08	.11	2	3-0-4-0	.12
2	4/0 to 300 M		.10	.12	3	250M-450M	.13
3	14	500 to 750 M	.10	.12	4	500M-700M	.15
4	14	800 to 1125M	.14	.15	5	750M-1000M	.17
5	2	1500 M	.14	.16	6	1125-2500M	.24
6	2	2000 M	.16	.18			

ADJUSTABLE BEAM HANGERS

T & B or Similar	Price Each
Type A Clamp Including Bolts Fits Flange $\frac{3}{4}$ " to $\frac{7}{8}$ "	\$0.50
Type B & C Clamp Including Bolts Fits Flange 7 to 12"	.75
Special Bolts	.10

Supports for above Hangers

	14"	14"	1"	14"	14"	2"	24"	3"
For One Conduit Steel	\$1.13	\$1.16	\$2.25	\$3.33	\$4.40	\$5.51	\$6.65	\$8.82
" Two Conduit Mall.	.20	.25	.33	.40	.50	.....	.....	.....
" Four Conduit Mall.	.31	.36	.....	.....	.....	.....	.....	.....

NOTE: For Price of Complete Hanger add Prices of Clamp & Supports.

HANGERS & PERFORATED BAR

Grabber

Perforated or Extension Bar	Size	Price
For $\frac{3}{4}$ to $\frac{1}{2}$ Conduit Per Foot		\$0.08
" $\frac{3}{4}$ to $\frac{5}{8}$ " "		.10
" $\frac{3}{4}$ to 6"	" "	.12

Hangers

No.	Hinge Hanger with Extn. Bar & Lag Screw	14"	14"	1"	14"	14"	2"	24"	3"
1	Hinge Hanger with Extn. Bar & Lag Screw	.18	.18	.20	.20	.22	.22	.23	.26
7	Band Hanger Extn. Bar and Beam Clamp	.22	.22	.23	.23	.25	.25	.26	.....
13	Hinge Hanger, Socket and Beam Clamp	.34	.34	.37	.37	.38	.....	.....	.....
200	Band Hanger Only	.10	.10	.12	.12	.13	.....	.....	.....
No.		14"	2"	24"	3"				
1	Hinge Hanger with Extn. Bar & Lag Screw	.25	.27	.30	.30	.32	.32	.34	.....
7	Band Hanger Extn. Bar and Beam Clamp	.28	.30	.32	.32	.34	.....	.....	.....
13	Hinge Hanger, Socket and Beam Clamp	.40	.47	.48	.48	.50	.....	.....	.....
200	Band Hanger Only	.14	.16	.18	.18	.20	.....	.....	.....

STANDARD SHADE HOLDERS

Finished

	24"	34"	4"
Uno 3 Screw Holder with Screw Top	\$0.10	\$0.30	\$0.40
Uno 3 Screw Holder with Contractile Collar	.10	.30	.....
Uno Wire Spring Holder with Screw Top	.15	.35	.....
Uno Wire Spring Form H with Collar	.30	.....	.....
Weatherproof 3 Screw Holders Clamp Top	.15	.35	.60

KNOBS, TUBES & CLEATS, PORCELAIN

KNOBS

Type		With	With	Without		Price
No. 514 Split Knobs		\$0.025		\$0.02		
514 Solid Knobs		.03		.03		
514 Nailite				\$0.025		
514 Screwit						
514 Knob Solid						
4 & 4½ Knob Solid		.04		.035		
No. 9410 Split 1½x1½				.07		
9420 Split 2½x2½				.12		
22 Victor Split				.10		
6001 Solid Teleph. 2 Groove				.07		
6062				.10		

TUBES

Diam.	3"	&	4"	5"	6"	8"	10"	12"	14"	16"	Length
Price Each	\$0.015		\$0.02	\$0.025	\$0.03	\$0.10	\$0.17	\$0.25	\$0.32	\$0.40	
" "	.02		.025	.03	.04	.11	.19	.27	.35	.43	
" "	.04		.05	.06	.07	.13	.21	.30	.38	.47	
" "	.07		.08	.09	.11	.15	.25	.34	.43	.52	
" "	.10		.12	.13	.15	.18	.29	.39	.49	.59	

CLEATS

2 & 3 Wire

Standard No. 334 2 & 3 Wire Unglazed Cleats without Screws Per Pair \$0.04

Glazed

ONE WIRE CLEATS
B & D Type—2 Piece

Dimensions	No.	Height	Length	Width	For Size	Wire	Price Each
1A	14	1	1½	1½	14 to 6	.....	\$ .06
1½A	14	2	2½	1½	6	2	.07
2A	14	2	2½	1½	2	0	.11
2½A	14	2	2½	1½	0	000	.15
3A	14	3	3½	1½	000	200,000 CM	.17
3B	14	3	3½	1½	000	200,000 CM	.18
3½B	14	3	3½	1½	2	500,000 CM	.20
4B	14	3	3½	1½	5	1,000,000 CM	.25
4½B	14	3	3½	1½	8	1,250,000 CM	.35

LOOM & L-SUNDRIES

Size	LOOM, NON-METALLIC CONDUIT
Price per Foot	\$0.03½ \$0.03½ \$0.00 \$0.12 \$0.16 \$0.17 \$0.25½

SOLDERING LUGS—One Hole

For Wire	Size	Wire	Price
No. 10 Under.	14	14	\$.03
8	8	8	.03
6	6	6	.04
4	4	4	.05
2	2	2	.06
0	0	0	.08
0000	0000	0000	.10
250 M. C. M.	250 M. C. M.	250 M. C. M.	.13
400 M. C. M.	400 M. C. M.	400 M. C. M.	.16
450 M. C. M.	450 M. C. M.	450 M. C. M.	.15
500 M. C. M.	500 M. C. M.	500 M. C. M.	.16
600 M. C. M.	600 M. C. M.	600 M. C. M.	.17
800 M. C. M.	800 M. C. M.	800 M. C. M.	.18
1000 M. C. M.	1000 M. C. M.	1000 M. C. M.	.19

For 2-Hole Lugs

With Regular Stud Holes Add 50% To Above Prices.

LINKS

For Chain

Price

Non-Insulating Splicing Links—Any Make—Each	\$0.05
Luminous Acorns—See Page PL-4 and Page PL-18.	.15

MAIL BOXES

COUCH

No. 73 Tilting Mail Boxes Post Office approved per Receptacle..... \$4.15

"TILTING" Speaking Tube Type

Series 7303 to 7309 and 73010 to 73012

No. of Boxes	3	4	5	6	7	8	9	10	11	12
Price ea.	16.20	21.50	27.00	32.30	37.80	43.20	48.60	54.00	59.40	64.80

SINGLE GANG Non-Tilting

No. 78 or 780 with call button or speaking tube unit..... Price each \$3.15

MOLDING, NATIONAL

MOLDING

Price

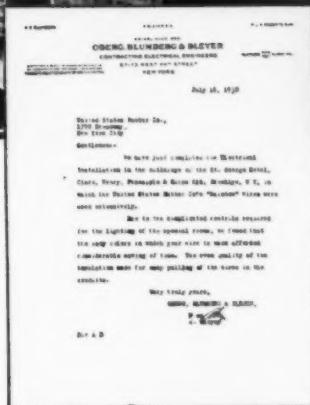
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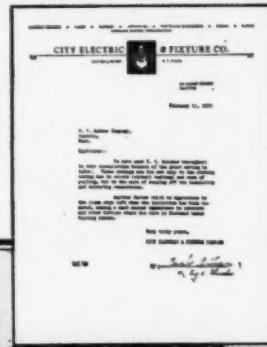
ELECTRICAL CONTRACTORS from COAST to COAST USE "U. S." RAINBOW WIRES



Hotel St. George
Brooklyn, N. Y.
Architect—Emory Roth
Electrical Contractor—
Oberg, Blumberg and Bleyer.



Washington
Manor Apartments, Seattle
Washington.
Architect—Earl
Roberts.
Electrical Contractor—City
Electric and
Fixture Co.



**50% EASIER
PULLING
CIRCUIT TESTING
IN $\frac{1}{3}$ THE TIME**

ELECTRICAL Contractors from coast to coast find that "U. S." Rainbow Wires are saving them time and money and are producing better jobs. Ask your jobber to send you "U. S." Rainbow Wires for your next job.

"U. S." Rainbow Wires are made in eight standard colors and in sizes from 18 A. W. G. to 1,000,000 C. M.

**WE'LL GLADLY
SERVE YOU
THROUGH YOUR
JOBBER**



"U. S." RAINBOW WIRES
UNITED STATES RUBBER COMPANY, 1790 BROADWAY, N. Y.

The World's Largest Producer of Rubber

For POWER

"Van Dorn"

A complete line
of Electric Drills
for every purpose

A range of sizes
from $\frac{3}{16}$ " to 1"

The complete line of Van Dorn electric tools consists of:

Drills	Hammers
Drill Stands	Bench Grinders
Screw Drivers	Portable Grinders
Valve Relacers	Flex-Disc Grinders
Also Wire Wheel Brushes, Hole Saws and Valve Reseating Cutters.	

See your Jobber about Van Dorn Electric Tools for maintenance work.

The VAN DORN ELECTRIC TOOL CO.
TOWSON, MARYLAND

CAPS & PLUGS For Receptacles

	Blades	Price
10 Amp. Pony Composition Cap.	.10	\$0.10
10 " Standard	.10	
10 " Cap With Extension Knob	.20	
10 " Brass Covered Cap.	.40	
10 " Steel	.15	
10 " Cord Grip Cap.	.30	
10 " Tandem Blade Compo. Cap.	.25	
Radio Jack Plug	.85	
Chapman Plug Reversible	.85	
Disappearing Door Plug Brass Top	1.00	
10 Amp. 2 Wire Polariz. Comp. Cap.	.25	
10 " 2 " Cord Grip Cap.	.40	
20 " 2 " Comp.	.50	
20 " 2 " Cord Grip	.75	
30 " 2 " Comp.	.75	
30 " 2 " Cord Grip	1.65	
10 " 3 " Comp.	.45	
10 " 3 " Cord Grip	.65	
20 " 3 " Comp.	.65	
20 " 3 " Cord Grip	1.00	
30 " 3 " Comp.	.65	
30 " 3 " Pore	.65	
30 " 3 " Comp. Cord Grip	1.50	
40 " 3 " Heavy Duty Angle Cap.	2.50	
Lamp Only 110 Volts for Bull's Eye Receptacles	.65	

RECEPTACLES, FLUSH

STANDARD RECEPTACLES OR CONVENIENCE OUTLETS		Plates Extra	Price
Without Plates			
Shallow Comp. Side Wired Single		\$.25	
" Duplex		.35	
" Pore.	Single	.25	
" Duplex		.35	
Deep Comp. Top	Single	.40	
" Duplex		.60	
" Pore.	Single	.40	
" Duplex		.60	

SUNDRY RECEPTACLES

Plates Extra Except Where Marked "X"	Price
For Lift Cover Plate Single	.50
Duplex	.50
" Pore.	Single
" Duplex	.35
With Rd. Met. Cvr. For 3/4 Box Single	.70
" Duplex	.45
" 4 " Single	.35
" 4 " Duplex	.50
With Rd. Brass Plate Small Single	1.10
Large	1.25
Edison Screw Base Recp. Single	.25
Chapman Receptacle	.65
Radio Single	1.00
Duplex	1.35
Disappearing Door Recp. Single	.75
Duplex	1.10
Screwless Plate Recp. Single	.30
Duplex	.45
10 Amp. Polariz. For 2 Wire Single	.65
20 "	1.25
30 "	1.40
30 " 2 " Single	3.00
10 " 3 " Single	1.40
20 " 3 " 2.00	1.60
30 " 3 " With Box Cover	4.75
40 Amp. Polariz. 3 Wire	5.60

YAXLEY RADIO RECEPTACLES

Connections	Brass Bakelite	Price
Several loud speakers	\$2.50	\$2.60
Loud speaker	1.00	1.10
Aerial & ground	1.00	1.10
Battery (with plug)	2.50	2.60
Electrical only	1.00	1.10
Double loud speaker	1.15	1.85
Loud speaker, aerial & ground	2.00	2.20
Aerial, ground & elect'	2.00	2.20
Loud speaker & elect'	2.00	2.20
Aerial, ground & battery	2.50	2.70
Loud speaker, aerial, ground & elect'	3.00	...

RECEPTACLE COMBINATIONS With Plates

	Price
Pilot Light-Plate and Single Outlet Comp.	\$2.00
" Duplex	3.50
" Switch and Bull's Eye	3.00
" Recpt. Only With Plate	2.00
Switch and Plate 10 Amp. Sgle. Out. Comp.	1.75
20 "	2.50
Hubbell Switch Tap Combination Screw Plate #7083-Recep. #7163	1.75
Hubbell Switch Tap & Pilot Light Comb. Screw Plate #7317-Recep. #7280	3.35

RECEPTACLES, PORCELAIN

ALABAX RECEPTACLES AND FIXTURES									
P & S, Hubbell, Arrow, G. E., Bryant, Weber									
Symbol: Column No. 1—Number of Alabax Fixture.									
Column No. 2—Resale Price Standard White Glaze Finish.									
Column No. 3—Resale Price All Over Color B-D-E-F-G-H-J-K-L-M.									
Column No. 4—Resale Price Stripe Decoration No. 1A-2A-4A.									
Column No. 1	Column No. 2	Column No. 3	Column No. 4	Column No. 1	Column No. 2	Column No. 3	Column No. 4	Column No. 1	Column No. 2
Al. 844	\$2.90	\$3.35	.....	AL. 849	\$2.30	\$2.60	\$2.75	.....	.....
845	3.20	3.65	.....	850	2.30	2.60	2.75	.....	.....
846	3.45	3.90	\$4.35	851	1.40	1.65	1.85	.....	.....
847	3.75	4.20	4.65	852	2.90	3.35	3.80	.....	.....
848	1.85	2.10	2.30	853	3.20	3.65	4.10	.....	.....

(Concluded in next column)

ALABAX RECEPTACLES AND FIXTURES—Concluded

Column No. 1	Column No. 2	Column No. 3	Column No. 4	Column No. 1	Column No. 2	Column No. 3	Column No. 4
AL. 850	1.85	\$2.15	\$2.30	AL. 1275	\$0.85	\$1.00	\$1.10
863	1.85	2.15	2.30	1276	.15	.30	.40
864	2.35	2.85	3.25	1300	2.80	3.05	3.25
865	2.70	3.10	3.60	1301	2.80	3.05	3.25
866	2.35	2.85	.....	1349	2.60	2.90	3.10
867	2.70	3.10	.....	1350	2.60	2.90	3.10
869	2.50	2.75	3.00	1351	1.70	1.95	2.15
870	2.50	2.75	3.00	1369	2.80	3.05	3.25
871	1.55	1.85	2.00	1370	2.80	3.05	3.25
872	2.90	3.35	3.85	1371	1.85	2.10	2.30
873	3.20	3.65	4.10	1449	2.70	2.85	3.15
875	2.30	2.60	2.80	1450	2.70	2.85	3.15
898	1.00	1.20	1.40	1451	1.75	2.05	2.25
919	1.65	1.90	2.10	1469	2.85	3.15	3.30
920	1.65	1.90	2.10	1470	2.85	3.15	3.30
921	.75	1.00	1.15	1471	1.95	2.20	2.40
922	1.65	1.90	2.10	1475	2.65	2.90	3.10
923	2.30	2.60	2.75	1476	2.65	2.90	3.10
924	2.00	2.25	2.45	2007	1.25	1.50	1.70
929	1.95	2.20	2.40	2008	1.35	1.60	1.75
930	1.95	2.20	2.40	2009	1.25	1.55	1.70
949	2.00	2.25	2.45	2010	1.40	1.65	1.80
950	2.00	2.25	2.45	2011	1.05	1.35	1.50
951	1.10	1.35	1.55	2012	1.10	1.40	1.55
952	1.95	2.20	2.40	2013	1.55	1.85	2.00
960	1.00	1.30	1.45	2014	1.65	1.95	2.10
962	2.00	2.25	2.45	2015	1.40	1.65	1.85
969	2.15	2.45	2.60	2371	1.85	2.15	2.35
970	2.15	2.45	2.60	2469	3.20	3.65	4.10
971	1.25	1.50	1.70	2471	2.75	3.20	3.65
980	1.55	1.80	2.00	2660	4.40	4.85	5.30
981	1.40	1.70	1.85	2671	3.95	4.40	4.85
982	1.55	1.80	2.00	2846	3.45	3.90	4.35
983	1.50	1.75	1.95	2847	3.75	4.20	4.65
984	1.35	1.60	1.80	2852	2.90	3.35	3.80
985	1.20	1.45	1.65	2853	3.20	3.65	4.10
989	1.70	1.95	2.15	2864	2.35	2.85	3.25
990	1.75	2.05	2.20	2865	2.65	3.10	3.55
1200	2.00	2.25	2.45	2872	2.90	3.35	3.80
1201	2.30	2.55	2.75	2873	3.20	3.65	4.10
1202	2.00	2.25	2.45	9826	2.00	2.25	2.45
1203	2.30	2.55	2.75	9830	1.00	2.20	2.35
1273	.50	.60	.70	9896	2.10	2.40	2.60
1274	.75	.90	1.00	9906	2.20	2.45	2.65

The above Prices do not include Glassware or Lamps.

RECEPTACLES, SURFACE

STANDARD RECEPTACLES or Lampholders

Keyless Porcelain	Standard Base	Universal	Price
Pony Cleat Receptacle No. S. H. Groove	Side Screws	50715	\$0.15
" Round	" Center	9171	.20
Standard Cleat	" Side	28795	.35
" " " With	" "	9402	.30
" " " Brass Shell	" "	4013	.40
" Concealed	No. S. H. Groove	9403	.45
" " " " " With	" "	4000	.45
Oblong " " " With	" "	58300	.55
Round " " " Removable Rings	" "	8105	.45
Oblong " " " S. H. Groove for Midg.	" "	50744	.50
Mogul-P & S No. 520-Arrow 5012-Hubbell 3464-G.E. 1194	G.E. 1194	4445-6	.20
Miniature or Candelabra Receptacle (Small Type)	Extended Type	9445-7	.25

BOX RECEPTACLES or Lampholders

Pull and Keyless—Porcelain and Brass Shell	Standard Base	Price
Porcelain Pull for 3 1/4 & 4" Box		\$1.85
Brass Shell " 3 1/4 & 4"		1.85
Porcelain Keyless for 3 1/4" Box		2.00
" 4" Box		.40
" 3 1/4 & 4" Box		.50
Brass Shell " For 3 1/4 & 4" Box		1.00
Porc. Rec. Metal Cover for 3 1/4" Box		.25
" 4" Wpf. 3 1/4" "		.30
" 4" "		.35
" 4" "		.35

T-SLOT BOX RECEPTACLES—Surface Type

T-SLOT BOX RECEPTACLES—Surface Type	Price
10 Amp. Standard Receptacle	\$0.50
10 " Receptacle with Covered Term.	.55
20 " Polarized Conduit Receptacle	.85
10 " Sgle. Porc. Rec. for 3 1/4" Box	.45
10 " Duplex	.50
10 " Sgle. " 3 1/4" "	.60
10 " Duplex	.60
Portc. Sub. Base for 40 Amp. Rec.	.70

T-SLOT HEAVY DUTY & POLARIZED

Cleat and Concealed Bases

Price

10 A. Small T Slot Cleat

10 A. Small T Slot Cleat

10 A. Small For Wood Molding

Sign Receptacles

SIGN RECEPTACLES—Standard Base
Keyless Removable Ring

Stand. Shallow Screw Term.	Price	
" Covered	.35	
" With 6 th Wire Lead	.40	
" " S. H. Groove	.40	
Competitive Shallow Screw Term.	.40	
" Covered	.45	
" No. 14 Wire Lead	.45	
Deep Type With Screw Term.	.45	
" Covered	.45	
" No. 18 Wire Lead	.45	
Solid Sign Rec. With Screw Trim	.20	
Porcelain Cleat Receptacle	Intermediate Base	Price
" " 2 Screw	.25	
" " with Spring Stud	.30	
" " Removable Ring	.30	

R-SUNDRIES

STANDARD ROSETTES—Porcelain		Price
Cleat—1 Piece Junior Fusible Rosette		\$.15
" 2" Fusible		.25
Concealed—2 Piece Concealed Fusible Rosette		.25
" 2" Fusible		.35
" 2" For Wood Moulding—Fusible		.25
" 2" Fusible		.35
Box Type—1 Piece Rosette or Box Cover Fusible	For 3 ¹ / ₂ " Box	4 .20
" 1" " " with Brass Terminals		4 .40
" " Brass Covered for Boxes		1.20
For Special Conduit Rosettes—See Pages PL-10, 11 and 12.		

GROUND RODS

Size	Copperweld	Galvanized Not Wired	Galvanized Wired	Galvanized Price
5 ¹ / ₂ "x5	\$.60	\$.30		
6 ¹ / ₂ "	.70	.35		
7 ¹ / ₂ "	1.30	.50	\$.65	
8 ¹ / ₂ "	1.50	.55	.70	
9 ¹ / ₂ "	1.95			
10 ¹ / ₂ "	2.40			
12 ¹ / ₂ "	1.95			
15 ¹ / ₂ "	2.30	.85	1.00	
18 ¹ / ₂ "	3.00	1.10		
20 ¹ / ₂ "	3.70			
25 ¹ / ₂ "	2.70			
28 ¹ / ₂ "	4.20			
32 ¹ / ₂ "	5.20			

RAWPLUGS—Standard Types

Number of Rawplugs	Drill Hole	For Screw No.	Price Each	Any Length
4	16	6-7	\$.02	
5	16	8-9	.03	
10	16	10-11	.04	
12	16	12	.05	
14	16	14	.06	
15	16	16-18	.08	
20	20	20-22	.12	

Rawplugs for Lag Screws

Size of Lag Screw	Size of Drill Hole	Size of Rawplug	Price Each	Length
1/4"	1/4"	1/4"	\$.13	1 1/2"
1/4"	1/4"	1/4"	.14	17
1/4"	1/4"	1/4"	.14	20
1/4"	1/4"	1/4"	.14	22

NOTE: For Expansion Shields—See Page PL-10.

SOCKETS

COMPLETE STANDARD SOCKETS								
Complete With	Pend.	3/8	3/8	3/8	3/8	3/8	3/8	Pend.
" Cap	Brass	Brass	Brass	Brass	Brass	Brass	Brass	Cord.
" Standard								Grip
Key	.25	.25	.40	.45	.55	.55	.60	.45
Keyless	.20	.20	.35	.40	.50	.53	.58	.40
Pull	.22	.22	.35	.45	.55	.60	.65	.55
Push	.30	.45	.50	.55	.60	.65	.65	.50
" Electrolier Brass Shell								
Key	.25	.35	.40	.50		.60	.65	
Keyless	.22	.22	.35	.40		.55	.60	
Pull	.35	.35	.45	.50		.70	.75	
Push	.30	.40	.50			.60	.65	
" Levelier Pull								
Pull	.50	.50	.60					
" Threaded Catch Brass Sockets								
Key	.45	.45	.60	.60	.65			.60
Keyless	.40	.40	.55	.55	.60			.55
Pull	.60	.60	.75	.75	.85			.75
Push	.50	.50	.60	.60	.65			.60
" Cold Molded								
Key	.50	.65	.70		.80		1.20	.70
Keyless	.45	.60	.65		.75		1.15	.65
" All Porcelain Sockets								
Key	.50	.65	.70	.90	.85		1.30	.75
Keyless	.45	.60	.65	.80	.80		1.25	.70
Pull	.95	1.10	1.15	1.35	1.30		1.75	1.25
Push	.65	.75	.80	1.05	1.00		1.40	.85
" Lock Type Brass Shell								
Key	1.00	1.00	1.10	1.20	1.25	1.30	1.35	1.25
Keyless	.95	.95	1.05	1.15	1.20	1.25	1.30	1.20
Pull	1.25	1.25	1.25	1.45	1.50	1.55	1.60	1.50
Push	1.00	1.00	1.10	1.20	1.25	1.30	1.35	1.25

CAPS For Above Sockets

Standard Brass Cap	Pend.	3/8	3/8	3/8	3/8	3/8	Pend.
Electrolier	8.10	\$ 1.0	\$ 2.0	\$ 3.0	\$ 4.0	\$ 5.0	\$ 3.0
Brass Threaded	.10	.10	.20	.30	.40	.50	
Cold Molded	.15	.15	.25				.30
All Porcelain	.15	.30	.35	.55	.60		.55

BODIES FOR STANDARD SOCKETS

Standard Brass Shell Body Only	Key	Keyless	Pull	Push
Standard Electrolier Shell Body Only	.20	.15	.30	.25
Brass Shell Threaded Catch Body	.40	.35	.55	
Cold Molded Composition Body	.45	.35		
All Porcelain Body Only	.40	.35	.50	.50
Lock Type Brass Shell Body Only	.95	.90	1.20	.95

BASES FOR SOCKETS

Bases Only For Brass and Porcelain Sockets	Price
Cleat Base For Open Wiring	\$.40
Concl. Base for Concl. Wiring—Small	.30
Brass Cov. Base Concl. Wiring—Small	.50
Brass Covered Base for 3 ¹ / ₂ " Box	.65
Brass Covered Base for 4" Box	1.10
Angle Concealed Base	.40
All Porcelain Cleat Base	.25
All Porcelain Concealed Large	.35
All Porcelain For 3 ¹ / ₂ " Box	.40
All Porcelain For 4" Box	.55

BRASS BAYONET SOCKETS

Sometimes Called Wall Sockets or Receptacles	Price
Keyless Brass Shell with Small Conc. or Slotted Base	50717 & 18 \$.40
" " Covered Base	60019 .65
Key " " Large	60020 .90
" " Small Concealed Base	9184 .65
Key " " Covered	60018 .65
" " with Removable Ring	50746 & 7 .65

BRASS TWIN SOCKETS & ADAPTORS or Current Taps

Pull Adaptor Socket—No Outlet	Price
Pull Adaptor Socket T Side Tap	1.10
Pull Twin Socket—Screw Side Outlet	1.35
Pull Socket 1/2" Cap T Side Tap	2.00
Keyless 1/2" Cap Side T Side Tap	1.10
Key 1/2" Cap Side T Side Tap	.80

WEATHERPROOF SOCKETS

Composition Mica or Porcelain with Leads	Price
CANDLE SOCKETS	
Stand. Base Keyless Candle Socket with Rigid or Adjust. Hickory	* .15
" " Push Candle Socket with Rigid or Adjust. Hickory	.65
" " Pull Candle Socket with Rigid or Adjust. Hickory	.45
Std. Base Turn or Tumbler	.50
Leverier Bracket Candle Sockets—Lever Brass No. 108 to 130	.70
" " Porcelain No. 121-122	.75
" " Fibre No. 123-124	.70
Intermediate Base Pull Candle Socket with Paper Jacket	1.20
Intermediate Base Keyless Candle Socket Porcelain	.25
Candelabra Type Pull Chain Socket	.25
Candelabra Type Candelabra Sockets	.20

CANDELABRA OR MINIATURE SOCKETS

Keyless Porcelain Male	Price
Female	.40
Brass Shell 1/2" Cap	.50
Key " "	.55
Pull	.95
Brass Shell Push 1/2" Cap	.55
Candle Type Keyless	.85
" " Pull	1.20

INTERMEDIATE BASE SOCKETS

Brass and Weatherproof	Price
Key Socket 3/8" Cap	\$.90
" " 5/8" Cap	\$ 10.00
" " Push Socket 3/8" Cap	\$ 10.00
" " Wpf. Socket Wire Leads	.25
" " 1/4" Cap	1.40

SOCKET ACCESSORIES

Adaptors for Sockets—See Pages PL-4 and 18.	Price
Acorn Hubbell 5019-5022-7004—or Similar—Each	.10
Acorn Luminous Hubbell 2015 Bryant 750 GE 800—or Similar—Each	.20
Bushings Hard Rubber 1/2" Each .016-.56 Each	.02
Chains for Pull Sockets—Per Foot	.03
Cord for Devices—Light Type—Per Foot	.03
Cord for Devices—Heavy Type—Per Foot	.04
Handles for Sockets—Bryant 1240-1338—or Similar	.05
Splicing Links Non-Insulating for Chain—Each	.05
Splicing Links Insulated for Chain—Each	.15

SOCKETS, HEAVY DUTY

MOGUL SOCKETS	With
Arrow, Bryant, G. E., Hubbell, H. & H., P. & S., Weber	3/8" or 1/2" Alum. or
" " With	Brass Cap
" " Body Only	Iron Yoke
" " Two	1/2" or 3/4" Nipple
" " One	1/2" or 3/4" Nipple
" " Lead Wires	.95
Brass Shell Keyless Mogul Socket 3/8" or 1/2" Brass Cap	\$ 2.25
"	

PL-20

Sockets, Heavy Duty

Switches, Pull Cord

HEAVY DUTY SOCKETS—Benjamin				Price Each
Benco Keyless Socket with Clamp Ring	#4700 to 4703	Medium Base	.....	\$1.25
" without "	4712 to 4715	" "	.....	1.05
" Pull " with "	4706 to 4709	" "	.....	2.00
Benco Keyless Socket Copper or Alum.	#4200-1-4-5 & 4335 & 7	.....	75	
" Brass	#4202-4203-4336	.....	90	
" Pull	4207-8 4225-26 4236-37	Brass, Copper or Alum.	.....	1.50
" Mogul	Copper Clad	#4210-4297	.....	2.00
Benco Threaded Holders Only	21/4" 31/4" 4"	.....	.....
Polish. Alum. Weatherprf.	#4215 & 4217	.....	\$3.35	
Copper	— 4370-72 & 73	.....	40	60
Brushed Brass	— 4377-79 & 80	.....	40	60
		.....	1.00	

BENJAMIN MOGUL SOCKETS				With	With
	Without	Iron	Alum.	% or 3/4	% or 3/4
One Piece Socket with Lamp Grip	\$1.00	1.15	\$1.50	
Two Piece Socket with Lamp Grip	1.20	1.45	1.70	

BENJAMIN REFLECTOR SOCKETS				With Type X or XR Fitting
Porcelain or Similar	Medium Base Keyless Tapped 3/8-3/4-3/4 No. 4650-51 & 65	.....	\$1.20	
" "	" Self-Locking 3/8-3/4-3/4 No. 4528-29-30-32-33	.....	1.60	
" "	" Shock Absorb. 3/8-3/4-3/4 No. 4676-77-78-80-81	.....	1.45	
" "	" Shock Absorb. Self Lock No. 4548-49-50-52-53	.....	1.90	
" "	Pull Chain No. 4534-35 & 4660-61-67	.....	2.05	
Mogul Base Keyless Shock Absorbing No. 4670-71-72	.....	1.95		
" "	Not Shock Absorbing No. 4656-57 4666	.....	1.65	
If X or XR Fitting not supplied on above sockets deduct	.....	45		

SWITCHES, FLUSH TUMBLER

Plates & Boxes Extra				Price
Square Handle Porcelain Cup—Sgl. Pole	Dble.	.....	\$3.35	
" " " " 3 Way	.....	1.00		
" " " " 4	.....	.50		
" Composition Cup—Sgl. Pole	.....	3.00		
" " " " Dble.	.....	.85		
" " " " 3 Way	.....	1.35		
" " " " 4	.....	.90		
20 Amp. Sgl. Pole	.....	1.35		
20 Amp. Dble. Pole	.....	1.50		
Round Handle Porcelain Cup—Sgl.	Dble.	.....	3.35	
" " " " 3 Way	.....	.50		
" " " " 4	.....	.80		
New Circuit Type	.....	8.00		
Twin-2 Sgl. Pole Switches	.....	\$1.35		
Twin-1 Sgl. Three Way	.....	1.50		
Twin-2 Sgl. 3 Way Switches	.....	2.10		
Triplet-3 Sgl. Pole Switches	.....	1.75		
Triplet-2 Sgl. & 1-2 Way Switches	.....	1.90		
Lock Type Porcelain Cup—Sgl. Pole	.....	1.30		
" " " " Dble.	.....	.85		
" " " " 3 Way	.....	1.35		
" " " " 4	.....	.85		
EXTRAS—For Luminous Tip add for Each Handle	.....	40		
For Glo Guide Handle Switches add for Each	.....	1.00		

TUMBLER SWITCH COMBINATIONS

TUMBLER SWITCH COMBINATIONS				Price
Comb. One Tumbler Switch & One Flush Recip. with Plate Less Box	.....	\$2.00		
Comb. One Tumbler Switch & One Bull's Eye with Plate Less Box	.....	3.00		
Comb. Switch Tap & Recip. Hubbell 7163-64 Less Plate and Box	.....	1.60		
Comb. Switch Tap & Pilot Light Hubbell 7180-81 Less Plate and Box	.....	2.65		

PLATES For Tumbler Switches				Price
1	2	3	4	
Stampd. Brass Sprayed Finish	.040 Thick	\$.15	\$.30	\$.45
" Brush Brass	* .040	* .20	* .40	1.55
" Sprayed	* .060	* .20	* .60	1.70
" Brush Brass	* .060	* .30	* .90	1.85
Bakelite or Composition Molded	.....	.20	.40	.80
Twin & Triple Switch Up Plates	.....	.30	.30	.....
" " Solid Brass	.....	.50	.50	.....
Hubbell Bakelite Screwless Plates	.....	.60	1.10	1.60
Giant DeLuxe Wood Inlaid any Finish	.....	2.25	3.90	6.00
All Metal	.....	.85	1.50	2.10
Guth Porcelain Enamel Plates	.....	.30	.65	1.00
Glass Mirror Plates	.....	1.00	1.75	2.50
Blank Plate .040 Brush Brass Finish	.....	.30	.60	.90
Telephone Plate .040 Brush Brass Finish	.....	.35	.45	.....
Combination Switch & Reciprocate Plate—Molded	.....	.....	1.40	.....
" Brass	.....	.....	.50	.....

SWITCHES, FLUSH PUSH

Plate & Boxes Extra				Price
Standard Shallow Type Porcelain Cup—Single Pole	.....	\$0.35		
" " " " Double	.....	1.10		
" " " " 3 Way	.....	.50		
" " " " 4	.....	3.00		
Deep Type Porcelain Cup—Single Pole	.....	.70		
" " " " Double	.....	1.15		
" " " " 3 Way	.....	1.15		
" " " " 4	.....	3.00		
Special High Grade — Single Pole	.....	1.15		
" " " " Double	.....	1.50		
" " " " 3 Way	.....	1.50		
" " " " 4	.....	3.00		
Lock Type Porcelain Cup—Single Pole	.....	1.45		
" " " " Double	.....	1.85		
" " " " 3 Way	.....	1.85		
" " " " 4	.....	3.75		
Electrolizer Non-Indicating	.....	1.75		
" Indicating	.....	1.90		
Extra for Luminous Button Add Per Switch	.....	.40		

PUSH SWITCH COMBINATIONS With Plates

PUSH SWITCH COMBINATIONS With Plates				Price
Bryant 117 D. P. Indicat. Switch	Flush Receptacle & .060 Plate	.....	\$2.00	
413 One Push Switch-Bulls Eye and Solid Plate	.....	4.00		
518 * Disap. Door Recp. Bull's Eye—Solid Plate	.....	7.50		
465 * D. P. Flush Switch & Pilot Lamp .060 Plate	.....	3.50		
467 * Flush Switch—Flush Recp.—Bulls Eye—Solid Plate	.....	6.00		
523 * Duplex	.....	6.80		
3759 * Bull's Eye—Solid Plate	.....	4.00		
H & H 3762 * Duplex Recp. Solid Plate	.....	5.50		
3759 * Single	.....	3.50		
8810 *	.....	5.30		

PLATES For Flush Push Switches

PLATES For Flush Push Switches				Price
Stampd. Brass Sprayed Finish .040 Thick	.15	\$.30	\$.45	\$1.35
" Brush Brass .040	.20	.40	.60	1.55
" Sprayed .060	.20	.60	.90	1.70
" Brush Brass .060	.30	.80	.90	1.85
Bakelite or Composition	.....	.20	.40	.80
Bryant DeLuxe Plates Wood Inlaid	.....	2.25	3.50	6.40
" All Metal	.....	.35	1.50	2.10
Guth Porcelain Plates	.....	30	.85	1.00
Glass Mirror Plates	.....	1.00	1.75	2.50
Blank Plate .040 Brush Brass Finish	.....	.30	.60	.90
Telephone Plate .040 Brush Brass Finish	.....	.35	.45	.....
Combination Push & Receptacle Plates .060 Brass	.....	35	.45	.....

SWITCHES, SURFACE SNAP

METAL COVERED SNAP SWITCHES

METAL COVERED SNAP SWITCHES				5	10	20	30
Poles	Volts	Type	Size	Amp.	Amp.	Amp.	Amp.
Single	125	Non-Indicating	Pony	.35	.....	.....	.....
"	"	Indicating	.....	.40	.....	.....	.....
"	"	Non-Indicating	Standard	.60	\$.75	\$1.45	\$2.15
"	"	Indicating	.....	.65	.85	1.60	2.30
Double	250	Non-Indicating	.....	.90	1.05	2.25	2.65
"	"	Indicating	.....	1.00	1.20	2.40	2.80
Triple	125	Non-Indicating	.....	1.00	1.20	2.40	2.80
"	"	Indicating	.....	1.25	1.50	2.75	3.15
3-Way	125	Non-Indicating	.....	.90	1.25	2.40	2.80
"	"	Indicating	.....	1.35	1.50	2.75	3.15
4-Way	125	Non-Indicating	.....	1.50	1.75	3.00	3.40
"	"	Indicating	.....	1.60	1.85	3.20	3.60
Electrolizer	125	Indicating	.....	1.55	1.75	3.00	3.40
"	"	Indicating	.....	1.70	1.70	3.00	3.40

ALL PORCELAIN SNAP SWITCHES

ALL PORCELAIN SNAP SWITCHES				5	10	20	30
Poles	Volts	Type	Size	Amp.	Amp.	Amp.	Amp.
Single	125	Non-Indicating	Pony	.35	.....	.....	.....
"	"	Indicating	.....	.40	.....	.....	.....
"	"	Non-Indicating	Standard	.65	\$.90	\$1.65	\$2.40
"	"	Indicating	.....	.75	1.00	1.80	2.55
Double	250	Non-Indicating	.....	.95	1.20	2.45	2.85
"	"	Indicating	.....	1.10	1.35	2.60	3.00
3-Way	125	Non-Indicating	.....	.95	1.35	2.60	3.00
"	"	Indicating	.....	1.35	1.50	2.75	3.15
4-Way	125	Non-Indicating	.....	1.50	1.75	3.00	3.40
"	"	Indicating	.....	1.60	1.85	3.20	3.60
Electrolizer	125	Indicating	.....	1.55	1.70	3.00	3.40
"	"	Indicating	.....	1.70	1.70	3.00	3.40

PARTS FOR SNAP SWITCHES

PARTS FOR SNAP SWITCHES				Price
Handles—Standard Type Each	\$ 1.12	Ratchet Type	.....	\$2.20
Bases—Porcelain 5 Amp. \$ 1.12—10 Amp. \$ 1.50—20 Amp.	.....	.....	.....	.....
Covers—10 Amp. & Under Metal \$ 1.15—Porcelain	.....	.....	.....	.....
Over 10 Amp.	.....	.....	.....	.....

SWITCHES, PULL CORD, CHAIN, CANOPY, LEVOLIER, ETC.

PULL CORD SWITCHES—BODIES ONLY

PULL CORD SWITCHES—BODIES ONLY				Price

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Switches, Pull Cord

TYPE "O" PULL SWITCHES
For Ceiling Fixtures or Ceiling Fans

Single or Double Pole—3 & 4 Point Electrolite & Motor Control—Similar to Bryant #2473 to 2480 with $\frac{1}{2}$ Caps, cord & Ball Each..... \$2.00

CANOPY SWITCHES

Snap or Tumbler Canopy Switches any style any make (except below)..... \$.40
Pull Type P & S—3316 or 17—Arrow 340—Bryant 666..... .95

'LEVOLIER PULL SWITCHES

McGill Co.

	Price
Twi-Lite Canopy or Fixture Switch #50-51-52.....	\$1.00
Link Switch #59.....	1.00
Conduit Box & Fixture Switch #61-62 & 63.....	1.00
Switch Hickey 64 & 64 A for above.....	.15

PENDANT SWITCHES

With Brass Pendant Cap

	Price
Brass Shell Pend. Cap Side Button.....	\$.60
Bottom.....	.80
Type "O" Side.....	1.90
All Porcelain Side.....	.60
(10 Amps).....	.85

FEED THROUGH SWITCHES

	Price
Nickel Feed Thru Switch.....	\$.50
Composition Feed Thru Switch.....	.50
Composition Feed Thru Switch, Egg Shape.....	.50
Composition Feed Thru Switch, Pony.....	.45

DOOR SWITCHES

	Price
Door Switch without Box.....	\$4.00
Box Extra.....	.60

DOOR SWITCHES & OPENERS
Edwards—commonly used types

	Price
#9 Door Opener Mortise Type \$ 2.75 #152 Rim Type Flush.....	\$ 6.10
48 Rim.....	31.25
48A Rim.....	34.25
50 Rim.....	31.25
50A Rim.....	34.25
51 Plate.....	34.25
51A Plate.....	35.25
52 Mortise.....	38.25
#239—Latch for #52.....	3.55

Partrick & Wilkins commonly used types

Mortise Type.....	Rim Type.....	Price.....
\$2.75	\$5.00	

SWITCHES, KNIFE, ENTRANCE & PANEL

ENTRANCE & PANEL SWITCHES
30 Amp. 125 Volts, Plug Fused

Description	Location of Fuses	Price
Double Pole.....	Top \$.80	
Large Size.....	Bottom .80	
Triple.....	Top .90	
Double Pole Single Branch.....	Bottom 1.25	
Large Type.....	Top 1.35	
Double Pole—Double Branch Vert. Mains.....	Bottom 1.50	
Horiz. 1.50	Top 1.50	
Trip. to D. P. Double Branch Vert. Mains.....	Bottom 3.00	
Horiz. Mains.....	Top 3.15	

BABY KNIFE SWITCHES

Any Make

Any Make	Porcelain Base 125 Volt	Slate Base 250 Volt	15 Amp. 30 Amp.	15 Amp. 30 Amp.
Single Pole Single Throw.....	\$.50	\$.60	\$.70	\$.70
Double Pole Double Throw.....	.85	1.05	1.00	1.25
Triple Pole Double Throw.....	.60	.70	.70	.85
Single Pole Double Throw.....	1.05	1.30	1.25	1.50
Double Pole Double Throw.....	1.30	1.55	1.50	1.85
Dbl. Throw 30 A. 250 V. Only.....	2.00	2.00	2.00	2.50

TYPE "C" KNIFE SWITCHES

Slate Base Front Connected

Trumbull-Bulldog or Similar

Frost Connected Slate Base	Not Fusible	Fusible				
2 Pole	3 Pole	4 Pole	2 Pole	3 Pole	4 Pole	
Sgl. Throw 30 A. 250 V. Only.....	1.75	2.65	....	\$1.70	\$2.60	\$3.50
250 & 500 V. AC.....	2.00	3.00	4.05	2.95	4.45	5.95
" 30 A.....	60 A.....	100 A.....	200 A.....	6.20	8.25	10.00
.....	.....	.....	.....	9.05	12.05	17.00
.....	.....	.....	.....	11.15	14.85	22.25
Dbl. Throw 30 A. 250 V. Only.....	2.95	4.22	....	....	....	....
250 & 500 V. AC.....	2.80	4.85	....	3.60	5.80	7.95
" 30 A.....	60 A.....	100 A.....	200 A.....	5.60	8.95	12.35
.....	.....	.....	.....	12.20	19.50	26.85
.....	.....	.....	.....	19.05	35.55	31.40
.....	.....	.....	.....	34.30	48.90	48.90

Electrical Contracting, August, 1930

SWITCHES, RESIDENCE, METER SERVICE, INDUSTRIAL, ETC.

SQUARE D

For Cadmium Plated or Galvanized Switches Add 40%

SMALL SERVICE ENTRANCE SWITCHES

30 Amp. "Square D" Switches Residence Type

Numbers	Volts	Fuse	Description	2 Pole	3 Pole
97211-07311	125	For Plug	Solid Neut.	\$1.65	\$2.50
90211-09311	125	*	Neut. Fused.	1.65	3.00
78211-78311	125	*	Meter Test.	2.65	4.10
1211	125	Forc. Entr. Switch	.....	1.80	.....
97251-07351	250	Excl. Fused	Solid Neut.	1.65	\$2.20
99251-09351	250	*	Fused Neut.	2.50	4.35

METER SERVICE SWITCHES

"Square D" Accessible Main Fuses Without End Walls

Amps.	Poles	Fused	Meter	Non-Meter
		For	Test Type	Test Type
30	2	2 Plug	Number	Number
30	2	1 *	30211	10211
30	3	2 *	30231	10231
30	3	2 *	30331	10331
30	3	2 *	30381	10381
30	2	Enc.	30251	10251
30	2	*	30271	10271
30	2	*	30361	10361
30	2	*	30371	10371
60	2	*	30252	10252
60	2	*	30272	10272
60	2	*	30362	10362
60	2	*	30372	10372
100	2	*	30253	10253
100	2	*	30273	10273
100	3	2 *	30383	10383
100	3	2 *	30373	10373

METER SERVICE SWITCHES

"Square D" Main Fuses Sealed Without End Walls

Amps.	Poles	Fused	Meter	Non-Meter
		For	Test Type	Test Type
30	2	2 Plug	Number	Number
30	2	1 *	36221	16211
30	3	2 *	36231	16331
30	3	2 *	36331	16381
30	3	2 *	36381	16381
30	2	Enc.	36251	16251
30	2	*	36271	16271
30	3	2 *	36361	16361
30	3	2 *	36371	16371
60	2	*	36252	16252
60	2	*	36272	16272
60	3	2 *	36362	16362
60	3	2 *	36372	16372
100	2	*	36253	16253
100	2	*	36273	16273
100	3	2 *	36383	16383
100	3	2 *	36373	16373

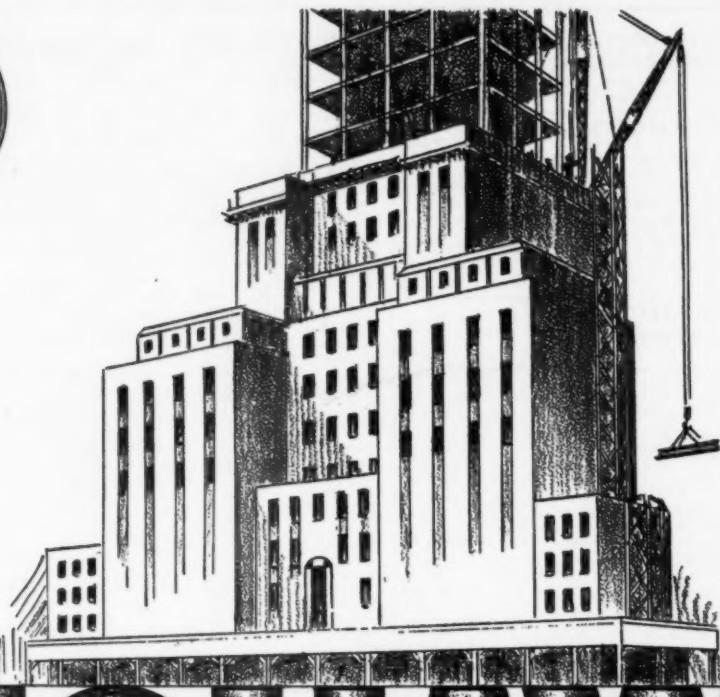
MISCELLANEOUS

Enclosed Double Branch Cutout No. 35211—30 Amp. 125 Volts.....	Prices
50211—30	\$2.35
50211—30	2.20
Cartridge	5.65
1021—30	1.25

UNIVERSAL METER SERVICE SWITCHES

"Square D" Meter Service Types

Number	Amps.	Pole	Fused	Neutral	Description	Price
55211	30	2	1 Plug	Solid	Single Type Fused Dead.....	\$ 2.85
58211	30	2	*	Fused	Live.....	2.95
SK-916	30	1	*	Solid	Dead.....	2.95
55311	30	2	*	Solid	Dead.....	3.70
57311	30	2	*	*	Live.....	3.70
15211	30	2	*	*	Gang Type Fused Dead.....	2.80
18211	30	2	*	*	Live.....	3.35
39231	30	2	*	*	Gang Type Acces. M. Fuses	4.40
39331	30	2	*	*	Gang Type Acces. M. Fuses	5.20
15311	30	2	*	*	Dead.....	4.15
17311	30	2	*	*	Live.....	4.15
58251	30	2	Cart.	Fused	Extra for End Wall.....	.90
26251	30	2	*	*	Cartidge Fused Live.....	3.80
57351	30	2	*	*	Dead.....	4.05
28252	60	2	*	*	Live.....	4.08
27312	60	2	*	*	Dead.....	5.20
14312	60	2	*	*	Live.....	5.20
28253	100	2	*	*	Fused	15.05
27313	100	2	*	*	Solid	15.05
14313	100	2	*	*	Dead.....	27.80



MOHAWK

Made HEAVY for Durability

The thick walls of Mohawk Conduit are made for heavy duty and longevity. Your Mohawk installation will be safe as long as the building lasts.

MOHAWK RIGID CONDUIT has the approval of contractors; it is made heavy; impervious to acids; durable as the building.—Tough Enamel; smooth, glossy finish. Pipe bends so easily, you hardly realize it is steel.—And, clean even threads that make work a joy.

Mohawk Conduit may be had in either Indian Black (enamel) or Indian White (galvanized).

THE NEW BOOK OF FACTS IS A VALUABLE
REFERENCE BOOK. SEND FOR IT.

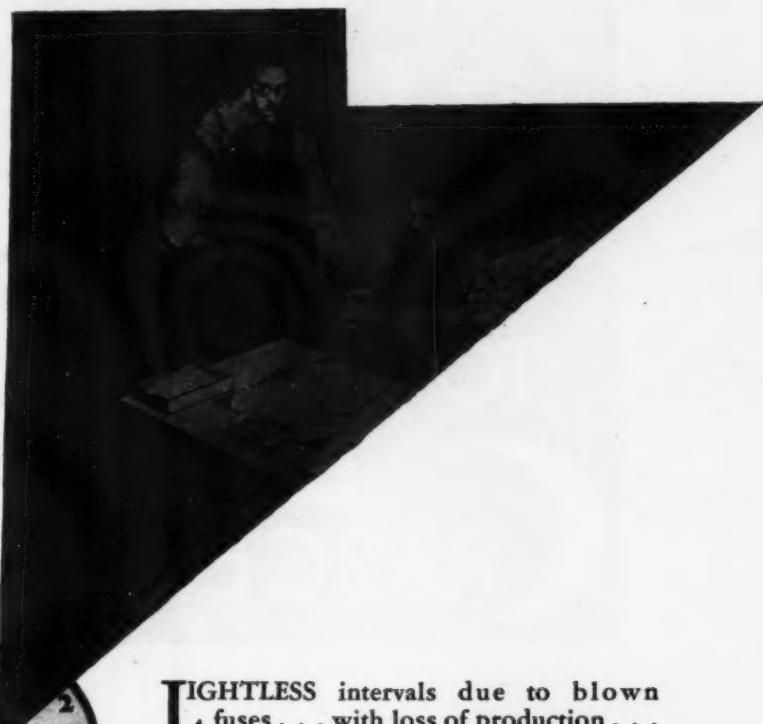


MOHAWK CONDUIT CO., INC., COHOES, N. Y.

BRANCH OFFICES: NEW YORK - CHICAGO - PHILADELPHIA - BOSTON
INDIANAPOLIS - NORFOLK - MINNEAPOLIS - DENVER - SEATTLE
LOS ANGELES - SALT LAKE CITY - SAN FRANCISCO - PORTLAND, ORE.

REDUCE Lightless Intervals

with
Nofuz
 Panelboards



LIGHTLESS intervals due to blown fuses . . . with loss of production . . . increased accident hazards . . . and wasted time . . . can be reduced to the minimum in duration and frequency by installing Nofuz panelboards in every class of building.

Overloads that the wiring can carry in safety do not cause the breaker to open the circuit . . . yet the wiring is protected at all times and under all conditions. And when abnormal overloads open the circuit, the nearest worker can restore service with a flip of the breaker handle. There is no danger . . . no live parts are accessible and, if the abnormal overload condition has not been cleared, the breaker will again trip. It cannot be held closed under such conditions.

Further, the breaker calibration cannot be changed; its action cannot be blocked. Every breaker is calibrated and tested at the factory to assure unfailing service for years to come.

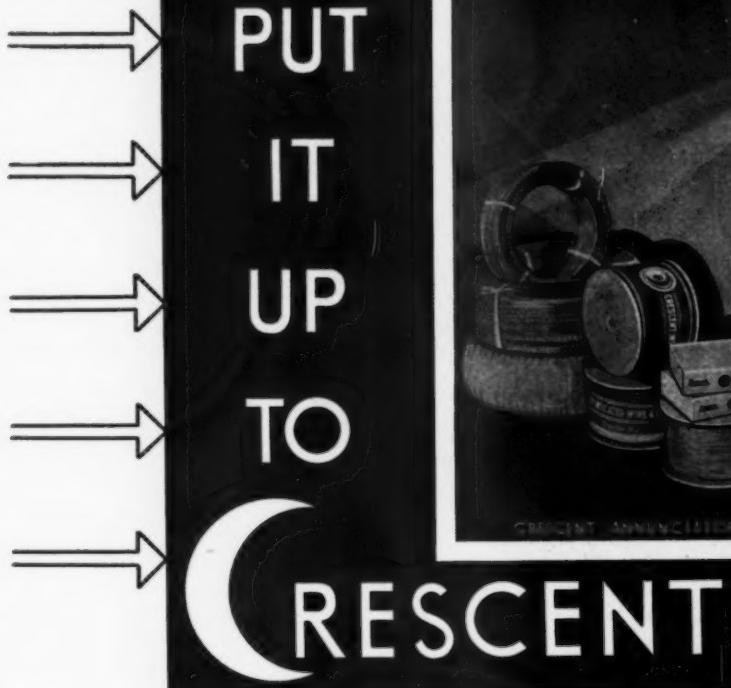
Service, prompt and efficient, by a coast-to-coast chain of well-equipped shops



Westinghouse

T 31415

TUNE IN THE WESTINGHOUSE SALUTE OVER THE N. B. C. NATION-WIDE NETWORK EVERY TUESDAY EVENING.



A LITTLE error may spoil a good reputation. A few feet of inferior wire may ruin an otherwise high grade job. No matter how small the wire you need, no matter how unimportant it may seem, if you are using Crescent Wire you're safe.

The reasons—wire drawn accurately to gauge; annealed to correct degree of softness, always bright and clean, Covering of the best grade materials, applied by the most highly skilled experts obtainable, resulting in a uniformly good product with maximum number of feet per pound consistent with proper insulation.



CRESCENT PRODUCTS

- "Crescent" National Electric Cords, Rubber Covered Wires and Cable.
 - Intermediate Grade Mineral Covered Wires and Cables.
 - "Imperial" 30% Rubber Covered Wires and Cables.
 - "Crescent" Lead Enclosed Wires and Cables.
- "Crescent" A. R. C. Armored Bushed Cable.
"Crescent" Lead Covered Armored Cable.
"Crescent" Flexible Metallic Conduit.
"Crescent" Varnished Cambric Cables, Lead Encased or Braided.
All kinds of special wires and cables.

CRESCENT
Insulated Wire and Cable Co.
CRESCENT ARMORED WIRE CO.
TRENTON N.J.

FORTY-ONE YEARS OF KNOWING HOW IN EVERY CRESCENT PRODUCT

BRONZE—Standards, Newels, Brackets—IRON

**EVERY
BUILDING ENTRANCE
Should be LIGHTED . . .**

NOT only in the interests of safety but from an architectural viewpoint, building entrances deserve ornamental lighting.

Entrance standards, brackets or newels, add much to the appearance, but little to the cost of a building.

Union Metal has developed a complete line of exterior lighting fixtures, including designs for almost every type of service. These fixtures are available in either cast iron or bronze.

Where special fixtures are required, Union Metal craftsmen work from the architect's rendering and promise a faithful reproduction of the original conception.

Write for complete information on either stock or special designs.

THE UNION METAL MANUFACTURING CO.
GENERAL OFFICES AND FACTORY + CANTON, OHIO

SALES OFFICES: New York, Chicago, Cleveland, Boston
Los Angeles, San Francisco, Seattle, Dallas, Atlanta

UNION METAL
EXTERIOR
LIGHTING FIXTURES

METER SERVICE SWITCHES—Continued

NON-METER TEST TYPE

Number	Amps.	Pole	Fused	Neutral	Description	Price
26311	30	3	2	Plug Solid	Plug Type Fuse Dead.....	\$ 2.40
26351	30	3	2	Cart.	Cart. Type Fuse Dead.....	3.75
SK-659	30	3	2	Cart.	Cart. Type Fuse Dead.....	4.30
SK-660	60	3	2	"	Cart. Type Fuse Dead.....	11.70
SK-674	100	3	"	"	Cart. Type Fuse Dead.....	19.20

POLYPHASE METER SERVICE SWITCHES
"Square D" Accessible Main Fuse Type

METER TEST TYPE

Number	Amp.	Pole	Fused	Price
30391	30	3	3 Cart.	\$10.65
30392	60	3	3 "	20.35
30393	100	3	3 "	30.00

NON METER TEST

Number	Amp.	Pole	Fused	Price
10391	30	3	3 Cart.	\$10.65
10392	60	3	3 "	18.60
10393	100	3	3 "	28.25

"Square D" Sealable Main Fuses

METER TEST TYPE

Number	Amp.	Pole	Fused	Price
36351	30	3	3 Cart.	\$11.00
36352	60	3	3 "	17.80
36353	100	3	3 "	26.50

NON METER TEST

Number	Amp.	Pole	Fused	Price
SK-671	30	3	3 Cart.	\$ 4.60
SK-672	60	3	3 "	11.70
SK-673	100	3	3 "	19.20

FITTINGS FOR STANDARDIZED SWITCHES

Price			
End Walls for 30 Amp. Switches.....	\$.30		
60 & 100 Amp. Switches.....	.80		
Trough Closing Plates No. 20533 & 34.....	.10		
Connecting Trough No. 20733—3½" Long.....	.45		
20738—8½".....	.80		
Universal End Wall & Shutters.....	.30		
Meter Shutter only No. 24358.....	.15		

OUTDOOR METER BOXES

		Enam.	Galv.
SK2158 with Test Block.....		\$7.05	\$9.55
SK2186 without Test Block.....		4.85	7.30

TYPE C

"Square D" Single Throw, Industrial Switches
Quick Break Only

	250 Volts Fusible	575 V. AC with Arc Suppres.	Unfused.
	2 Pole	3 Pole	Amps. Description
Amps.	30 \$5251 \$3.20	30 \$5351 \$5.20	3 Pole 575V. Fused....
30	\$5251 \$3.20	\$5351 \$5.20	46341 \$10.95
60	\$46252 \$8.20	\$46352 10.00	30-60 575V. Not Fused 41342 10.95
60	Solid Neutral #47312 9.10		60 575V. Fused.... 46342 13.65
100	\$45253 \$12.75	\$45353 15.50	100 575V. Not Fused 41343 17.30
100	Solid Neutral #48313 14.60		100 575V. Fused.... 46343 21.85
200	\$46254 \$30.00	\$46354 26.40	200 575V. Not Fused 41344 29.15
200	Solid Neutral #47314 22.75		200 575V. Fused.... 46344 38.25

TYPE A WITH ARC SUPPRESSORS

"Square D", Industrial Quick Make & Break, Single Throw

	230 V. DC. and AC.	250-600 V. DC. and 575 V. AC.	Unfusible
Amps.	2 Pole	3 Pole	Amps. Description
230	#80351 \$13.65	x30 #81252 \$9.55	#81351 \$11.40
60	#86252 13.65	#86352 18.20	30-60 575V. Not Fused 41342 10.95
100	#86253 20.90	#86353 27.30	100 #81263 20.95
200	#86254 36.40	#86354 40.95	200 #81264 28.20
160	Amp. Sw. with 30 Amp. Spacing		(x 250 Volts only)

30 AMP. TYPE C

"Square D", Quick Break, Industrial, Single Throw

	250 Volts	Single Throw
No.	2 Pole	3 Pole
80251	\$3.20	Quick Make & Break
91251	3.65	Not Quick Break
x90251	7.75	Quick Break Only
		(x 60 Amp. Switches with 30 Amp. Clips).

MOTOR STARTERS

"Square D", Quick Make & Break, Single Throw

	Numbers & Types	Amps.	Volts	2 Pole	3 Pole	4 Pole
76251-351-451	Cover Control.....	30	250 V.	\$15.50	\$16.40	\$22.75
76332-76452	.....	60	250 V.	22.75	31.85	.....
76341-76441	.....	30	575 V. AC.....	22.75	31.85	.....
76342	.....	60	575 V. AC.....	32.75	.....	.....
69251-351-451	without Cover Cont.	30	250 V.	13.65	14.60	20.95
69332-69452	.....	60	250 V.	20.95	30.00	.....
69341-69441	.....	30	575 V. AC.....	20.95	30.00	.....
75251-351	Time Protective.....	30	250 V.	6.40	6.85	.....
75341 & SK2004	Time Protective.....	30	575 V. AC.....	11.85	13.65	.....
No. 98251	For Small AC & DC Motors up to ½ H. P. 220 Volts AC..					\$1.55

TYPE "C" SWITCHES

Cutler-Hammer (T-V) Single Throw Industrial Type
Series 4131

	250 Volts DC or AC Fusible	500-600 Volts AC Fusible				
Amps.	2 Pole	3 Pole	Amps.	2 Pole	3 Pole	
30	4131H2	\$ 3.15	4131H13	\$ 5.15	30 4131H7	\$ 8.55
60	4131H3	8.10	4131H14	9.90	60 4131H8	9.90
100	4131H4	12.60	4131H15	15.30	100 4131H9	14.40
200	4131H5	19.80	4131H16	26.10	200 4131H10	29.80
400	4131H6	48.60	4131H17	66.60	400 4131H11	64.80

125-250 Volt Solid Neut. Fusible Non-Fusible Type 250 DC 500-600 AC Amps. 3 Pole 4 Pole Amps. 2 Pole 3 Pole

30 4131H39 \$ 6.70 4131H44 \$ 8.10 x30 4131H54 \$ 3.15 4131H58 \$ 4.05

60 4131H40 9.00 4131H45 11.25 60 4131H55 8.10 4131H59 8.55

100 4131H41 14.40 4131H46 20.25 100 4131H60 10.80 4131H62 12.15

200 4131H42 22.50 4131H47 31.50 200 4131H63 18.90 4131H65 22.50

400 4131H43 63.00 4131H48 81.00 x30 Amp 250 Volts Only

ENTRANCE SWITCHES, LIGHT TYPE
Cutler-Hammer (T-V)

	2 Pole	3 Pole		
Amps.	Description	Numbers	Price	
30	For Plug Fuses.....	4141H1&2	\$ 1.65	
30	2 Blades -2 Fuses.....	4141H2	2.25	
30	For Cartridge Fuses.....	4141H6&8	1.80	
30	For Cartridge Fuses.....	4141H7	2.70	
30	For 2 Cart. Blades-2 Fuses.....		4141H11	3.25
30	Non-Fusible.....	4141H23	2.35	
60	For Cartridge Fuses.....	4141H13	6.65	
60	For 2 Blades & 2 Fuses.....	4141H16	7.40	
100	For Cartridge Fuses.....	4141H18	10.20	
100	For 2 Blades & 2 Fuses.....	4141H21	11.80	

METER SERVICE SWITCHES

Cutler-Hammer (T-V) Without End Walls

Meter Test Type	Live Fuse Type	Without End Walls
30	For Plug Fuses.....	4307H1&5
30	For Cartridge Fuses.....	4307H2&6
60	For Cartridge Fuses.....	4307H3&7
100	For Cartridge Fuses.....	4307H4&8
	Dead Fuse Type	
30	For Plug Fuses.....	4309H1
30	For Cartridge Fuses.....	4309H4
60	For Cartridge Fuses.....	4309H8
100	For Cartridge Fuses.....	4309H10&11

SAFE-LOCK METER SERVICE SWITCHES

Cutler-Hammer (T-V) Without End Walls

Accessible Main Fuses	Test Type	Without End Walls
30	For Plug Fuses.....	4325H1&2
30	For Cartridge Fuses.....	4325H4&5
60	For Cartridge Fuses.....	4325H7&8
100	For Cartridge Fuses.....	4325H10&11
	Non-Test Type	
30	For Plug Fuses.....	4327H1&2
30	For Cartridge Fuses.....	4327H4&5
60	For Cartridge Fuses.....	4327H7&8
100	For Cartridge Fuses.....	4327H10&11

POLYPHASE METER SERVICE SWITCHES

Style & Numbers End Walls 30 A. 60 A. 100 A.

Meter Test Sealed Fuse Type No. 4315H1-2-3	Yes	\$9.50	\$17.60	\$27.30
Meter Test Accessible Fuse Type No. 4329H18-19-20	No. 9.95	20.35	30.35	30.00

Non-Meter Test Accessible Fuse Type No. 4329H25-26-27

No. 9.35 18.60 28.25

UNIVERSAL METER SERVICE SWITCHES

Cutler-Hammer (T-V)

No.	Without End Walls	Price
4311H1		\$3.45
4311H2		3.75
4311H3		4.30
4311H4 & 5		4.80
	For Detailed Description See Cutler Hammer (Trumbull Vanderpoel) Catalog.	

Switches**Switches****MOTOR STARTING SWITCHES****Manual Operated T-V**

Series	Description	Amps	Volts	2 Pole	3 Pole	4 Pole
4151H1	Light Duty Motor Sw. 1/4 HP or Less.	30	125	\$ 1.65	.....	.....
9115H3	Motor Switch with Thermal Cutout.	30	To 550	.....	\$13.75	\$19.10
4231H	For Infrequent Duty.	30	220	8.10	9.95	12.85
4246H	For Infrequent Duty 5 HP.	30	220	12.45	13.05	16.50
4246H	For Infrequent Duty 7 1/2 HP.	30	440	19.45	23.40	26.55
4246H	For Infrequent Duty 7 1/2 HP.	60	220	17.10	19.45	26.55
4250	Motor Reversing Sw. Dble. Throw.	30	250	13.95	18.90	24.75
4250	Motor Reversing Sw. Dble. Throw.	60	250	17.55	22.05	32.40
4250	Motor Reversing Sw. Dble. Throw.	100	250	29.25	37.35	64.80

SMALL ENTRANCE SWITCHES**Trumbull Electric Closed or Open Ends**

Numbers	Amps.	Volts	Fusing	2 Poles	3 Poles
5700-EW Porc. Base.....	30	125	For 1 Plug Fuse....	\$1.65	.....
5791-2-3-4 & 5893.....	30	125	Plug Fuses....	1.85	\$3.45
5891-5892 Porc. Base.....	30	125	.....	1.85	2.40
13640-13641 Kappa.....	30	250	No Fuse-Slate Base....	2.75	4.10
13642-43 & 13743 Kappa.....	30	250	For Enclosed Fuses....	2.75	4.35
13221-13321 Quick Break.	30	250	.....	3.55	5.20

"DO-ALL" MAIN ENTRANCE SWITCHES**Trumbull Electric Non Meter Test Solid End Wall**

16361 to 16368.....	30	125-250	For Plug Fuses....	\$2.70	\$3.45
16371 • 16378.....	30	•	Enclosed Fuses....	3.05	3.75
16381 • 16388.....	60	250	•	8.45	8.90
16391 • 16398.....	100	250	•	15.05	15.95

"DO-ALL" METER SERVICE SWITCHES**Trumbull Electric For Meters Open End**

16300 to 16309.....	30	125-250	For Plug Fuses....	\$ 2.70	\$ 3.45
16315 • 16324.....	30	•	Enclosed Fuses....	3.05	3.75
16330 • 16338.....	60	•	•	8.45	8.90
16341 • 16348.....	100	250	•	15.05	15.95

ACCESSIBLE FUSE METER SWITCHES**Trumbull Electric With Test Blades Without End Walls**

18111.....	30	125	For 1 Plug Fuse....	\$ 3.25	.....
18211-18311.....	30	125	Plug Fuses....	3.70	\$4.20
18121.....	30	125-250	1 Enclosed Fuse....	3.60	.....
18221-18321.....	30	•	Enclosed Fuses....	4.45	4.45
18122-222-322.....	60	•	•	15.05	15.95
18123-223-323.....	100	•	•	23.85	25.60

Without End Walls and Without Test Blades

19111.....	30	125	For 1 Plug Fuse....	\$ 3.05	.....
19211-19311.....	30	125-250	Plug Fuses....	3.35	\$3.70
19121.....	30	•	1 Enclosed Fuse....	3.60	.....
19221-19321.....	30	•	Enclosed Fuses....	4.25	4.25
19122-222-322.....	60	•	•	14.15	15.05
19123-223-323.....	100	•	•	23.00	23.85

SEALED FUSE METER SWITCHES**Trumbull Electric With Test Blades Without End Walls**

15827.....	30	125	For 1 Plug Fuse....	\$ 2.20	.....
28111-28211-28311.....	30	125	Plug Fuses....	3.25	\$3.45
28211.....	30	125	1 Enclosed Fuse....	3.50	.....
28221-28321.....	30	125-250	Enclosed Fuses....	3.75	4.00
28222-28222-28322.....	60	•	•	12.85	13.75
28223-223-323.....	100	•	•	21.25	23.00

Without Test Blades

29111.....	30	125	For 1 Plug Fuse....	\$ 2.85	.....
29211-29311.....	30	125-250	Plug Fuses....	2.85	\$3.00
29121.....	30	125	1 Enclosed Fuse....	3.15	.....
29221-29321.....	30	250	Enclosed Fuses....	3.40	3.55
29122-222 & 322.....	60	250	Enclosed Fuses....	12.00	12.90
29223-223 & 323.....	60	250	Enclosed Fuses....	20.35	21.20

UNIVERSAL METER SERVICE SWITCHES**Trumbull Electric Without End Walls**

#071-123.....	30	125	For 1 Plug Fuse....	\$ 3.45	.....
072-123.....	30	125	For 1 Plug Fuse....	4.30	.....
073-333.....	30	125	For 2 Plug " Solid Neu. ....	.....	\$3.75
075-333.....	30	125	For 3 Combinations....	4.85	4.85
079-333.....	30	125	For 4 Combinations....	4.85	4.85

POLYPHASE ENTRANCE & METER SWITCHES**Trumbull Electric**

Series Nos.	Style	3 Wire	4 Wire	3 Wire	4 Wire	100 Amp.
15321-15623	Entrance—"DO-ALL"	\$ 4.70	.....	.....	.....	.....
15321-15623	Acc. Fuse—Test Conn.	11.60	\$15.00	\$21.10	\$37.00	.....
17321-17623	Acc. Fuse without Test Conn.	10.95	12.80	19.40	22.00	.....
26321-26623	Sealed Fuse with Test Conn.	11.50	14.40	17.80	33.50	.....
Series Nos.	Style	3 Wire	4 Wire	3 Wire	4 Wire	100 Amp.
15321-15623	Acc. Fuse—Test Conn.	.....	.....	.....	.....	.....
17321-17623	Acc. Fuse without Test Conn.	.....	.....	29.05	33.45	.....
26321-26623	Sealed Fuse with Test Conn.	.....	.....	27.30	44.00	.....

END WALLS, SHUTTERS, TROUGHS, ETC.**Trumbull Electric**

30 A.	60 A.	100 A.
End Wall One Piece for Standardized Switches.....	\$.30	\$.70
End Wall One Piece for Polyphase Switches.....	.40	1.00
Shutters for End Walls for Standardized Switches.....	.15	.30
Shutters for End Walls for Polyphase Switches.....	.30	.....
Troughs 2-3" & 4".....	\$.40	5".....
.....	.....	7".....
.....	.....	\$ .55

TYPE "A" SWITCHES**Trumbull Single Throw, Quick Make & Break**

230 Volts Fusible	230 Volts—No Fuse
2 Pole AC-DC 3 Pole AC Only	2 Pole AC-DC
30.....	72221 \$10.95 72321 \$13.65 36222 \$ 9.60
60.....	72222 13.65 72322 18.20 36222 13.30
100.....	72223 20.95 72323 27.30 36223 20.00
200.....	72224 36.40 72324 41.00 36224 35.50

Trumbull "SNUF-ARC" TYPE

Fusible	No Fuse
2P. 230-575	3P. 230-575
AC. 230-575	AC. 230-575
30.....	72261 \$16.40 72361 \$20.00 36261 \$12.75 * 36321 \$11.40
60.....	72262 17.30 72362 21.00 36262 13.65 36362 15.95
100.....	72263 27.30 72363 31.85 36263 20.95 36363 24.10
200.....	72264 43.25 72364 52.80 36264 28.20 36364 34.60

TYPE "C" SWITCHES**Trumbull Single Throw, Quick Make & Break**

230 V. Fusible	230 V. No Fuse
2 Pole AC-DC 3 Pole AC Only	2 Pole AC-DC 3 Pole AC
30.....	40221 \$ 5.50 40321 \$ 6.85 20221 \$ 5.00 20321 \$ 6.40
60.....	40222 8.20 40322 10.00 20222 8.20 20322 8.65
100.....	40223 12.75 40323 15.50 20223 10.95 20323 12.30
200.....	40224 20.00 40324 26.40 20224 19.10 20324 22.75

Fusible

2P. 230	230
AC. 230	AC. 230
30.....	44221 \$ 8.65 44322 \$10.50 44322 \$ 9.55 44322 \$11.85
60.....	44222 13.20 44323 15.95 44323 15.00 44323 20.95
100.....	44224 20.50 44324 26.85 44324 23.20 44324 32.30

WESTINGHOUSE ALL 30 AMP. PORCELAIN BASE

2 Pole	3 Pole
.....
.....
.....
.....

“Midget”—S. N.—1 Pole—Fuses—60212 & 62613	\$ 1.65
Type 00” Fusible—125-250 V.—Plug Fuses	60960 1.65 60961 1.65 60962 2.70
—S. N. 3 Blades	.....</td

Switches

30 AMP. SERVICE ENTRANCE SWITCHES
Bulldog

2 Pole—125 Volt—Fusible—For Plug Fuses No. 100211 S & P.....	\$1.65
" " " " Quick Make & Break	
104211S.....	2.75
2 Pole—250 Volt—Fusible—For Cart. Fuses 100221 S & P.....	2.50
250 " " " " Quick Make & Break	2.75
2 Pole—250 Volt—Not Fusible—For Cart. Fuses 103221 S & P.....	2.75
3 Pole—115 Volt—Fusible—For Plug Fuses No. 100311 S & P and 101311 S & P	3.00
3 Pole—115 Volt—Fusible—For Plug Fuses Quick Make & Break 104311S	4.35

"TYPE A"

Bulldog Single Throw Quick Make and Break

250 Volts—AC & DC Fusible	2 Pole	3 Pole	4 Pole		
No.	Price	No.	Price	No.	Price
30 Amp.....	10221 \$10.90	10321 \$13.60	10421 \$16.35		
60 "	10222 13.60	10322 18.15	10422 21.80		
100 "	10223 20.90	10323 27.25	10423 36.30		
200 "	10224 36.30	10324 40.85	10424 54.45		
400 "	10225 68.10	10325 82.50	10425 107.25		

575 Volts—AC Fusible	2 Pole	3 Pole	4 Pole		
No.	Price	No.	Price	No.	Price
30 Amp.....	10261 \$16.35	10351 \$19.25	10451 \$24.50		
60 "	10262 17.25	10352 20.90	10452 26.30		
100 "	10263 27.25	10353 31.75	10453 41.75		
200 "	10264 42.65	10354 52.65	10454 63.50		
400 "	10265 90.75	10355 99.00	10455 128.00		

Not Fusible.....	230 V.—AC. DC. 575AC.ArcChok 575AC.ArcChok.	2 Pole	3 Pole	4 Pole
30 Amp. 230 Volts only.....	13221 \$11.35	13421 \$16.35		
30-60 Amp.....	13222 \$11.80	13352 15.90	13452 21.80	
100 "	13223 19.95	13353 24.05	13453 31.75	
200 "	13224 25.40	13354 34.50	13454 46.30	
400 "	13225 54.45	13355 82.50	13455 107.25	

Fusible.....	600 V.—AC & DC	600 Volt—AC	600 Volt—AC	2 Pole	3 Pole	4 Pole
30 Amp.....	10261 \$16.35	10361 \$19.50	10461 \$23.60			
60 "	10262 17.25	10362 19.95	10462 25.40			
100 "	10263 27.25	10363 32.20	10463 39.95			
200 "	10264 42.65	10364 49.00	10464 59.90			
400 "	10265 90.75	10365 112.60	10465 132.00			

Not Fusible	2 Pole	3 Pole	4 Pole
30-60 Amp.....	13261-2 \$12.70	13361-2 \$16.35	13461-2 \$21.80
100 "	13263 20.40	13363 24.95	13463 29.95
200 "	13264 27.65	13364 34.05	13464 44.00
400 "	13265 66.25	13365 88.50	13465 110.55

COMPENSATOR SWITCHES

Bulldog Quick Make & Break Fusible

Amps.	230 Volt AC	3 Pole	4 Pole
30 A.	30321 \$16.35	30421	\$ 21.80
60 A.	30322 17.45	30422	26.30
100 A.	30323 28.15	30423	47.20
200 A.	30324 47.90	30424	65.35
400 A.	30325 76.25	30425	118.80

Amps.	575 Volts AC Arc Chokers	3 Pole	4 Pole
30 A.	30351 \$18.35		
60 A.	30352 19.25		
100 A.	30353 29.95		
200 A.	30354 50.85		
400 A.	30355 81.70		

MOTOR STARTERS

Bulldog

3 Pole	4 Pole	
30 Amp.—Type A—230 Volts AC.....	40321 \$16.35	40421 \$22.70
60 "	40322 22.70	40422 31.75
100 "	40341 22.70	40441 31.75
200 "	40342 32.70	

NOTE: For Bulldog Switches not listed deduct 10% from Bulldog Lists.

SMALL ENTRANCE SWITCHES

Columbia, 30 Amp.

Description	2 Pole	3 Pole
Single Fused Single Blade-125 Volt-Plug Fused	320-321 \$1.50	
Double " Double " 125 " " " " Quick Make & Break	1300 1.65	
" " " " 250 " Cartridge Fused	3930 1.90	
" " " " 250 " " " " Quick Make & Break	322 2.35	
" " " " 250 " Cartridge Fused	422 2.50	

Description	3 Pole
Single Fused-Single Blade-125 Volt-Plug Fused	
Double " Double " 125 " " " " Quick Make & Break	1931-2 \$2.15
" " " " 250 " Cartridge Fused	3931-2 2.45
" " " " 250 " " " " Quick Make & Break	328 4.00
" " " " 250 " Cartridge Fused	428 4.40

BRANCH CIRCUIT ENTRANCE SWITCHES

Columbia

30 Amp. Series	2 Pole	2 Pole	3 Pole	2 Pole	2 Pole	3 Pole	2 Pole	2 Pole	3 Pole
2401 to 2406	\$3.90	\$4.90	\$5.20	\$5.85	\$6.20	\$7.15			
3401 to 3406	4.90	6.20	6.50	7.15	8.45	9.50			
3501 to 3506	4.75	5.85	6.20	6.90	7.50	8.45			

Series 30—Quick Break—250 Volts for Meter Trims
For Cartridge Fuses

30 Amp.	3022	\$5.55	3025	\$8.75	3028	\$12.50	3031	\$18.20
3 Pole.....	3023	7.50	3026	10.00	3029	16.15	3032	24.05

INDUSTRIAL SWITCHES

Columbia

Series 70 Type C Fusible Amps	2 Pole	Number	Price	3 Pole	Number	Price
250 Volts Fusible	30A	C7001	\$ 9.30	C7002	\$11.30	
Quick Make & Break	60A	C7004	12.00	C7005	15.50	
100A	C7007	18.85	C7008	23.65		
200A	C7010	27.95	C7011	34.65		

Series 70 Type A Fusible Amps	2 Pole	Number	Price	3 Pole	Number	Price
250 Volts Fusible	30A	A7001	10.30	A7002	\$12.85	
Quick Make & Break	60A	A7004	13.10	A7005	17.30	
100A	A7007	21.45	A7008	27.50		
200A	A7010	30.50	A7011	38.35		

Series 71-500 Volts Fusible Amps	2 Pole	Number	Price	3 Pole	Number	Price
500 Volts Quick Make & Break	30A	7101	\$13.00	7102	\$15.50	
100A	7107	23.50	7108	26.65		
200A	7110	37.70	7111	42.25		

Series 74-600 Volts Unfused Amps	2 Pole	Number	Price	3 Pole	Number	Price
600 Volts Quick Make & Break	30A	7401	\$11.70	7402	\$14.35	
100A	7404	12.45	7405	14.95		
200A	7407	18.90	7408	21.45		
	7410	25.15	7411	29.25		

Series 20-250 Volts Fusible Amps	2 Pole	Number	Price	3 Pole	Number	Price
Quick Break Only	30A	2022	\$ 5.10	2023	\$ 6.85	
250 Volts	60A	2025	6.85	2026	7.90	
	100A	2028	10.85	2029	13.35	
	200A	2031	19.10	2032	23.85	

Series 23-250-500 Volts Unfused Amps	2 Pole	Number	Price	3 Pole	Number	Price
Quick Break Only	30A	2322	\$ 4.75	2323	\$ 6.25	
25						



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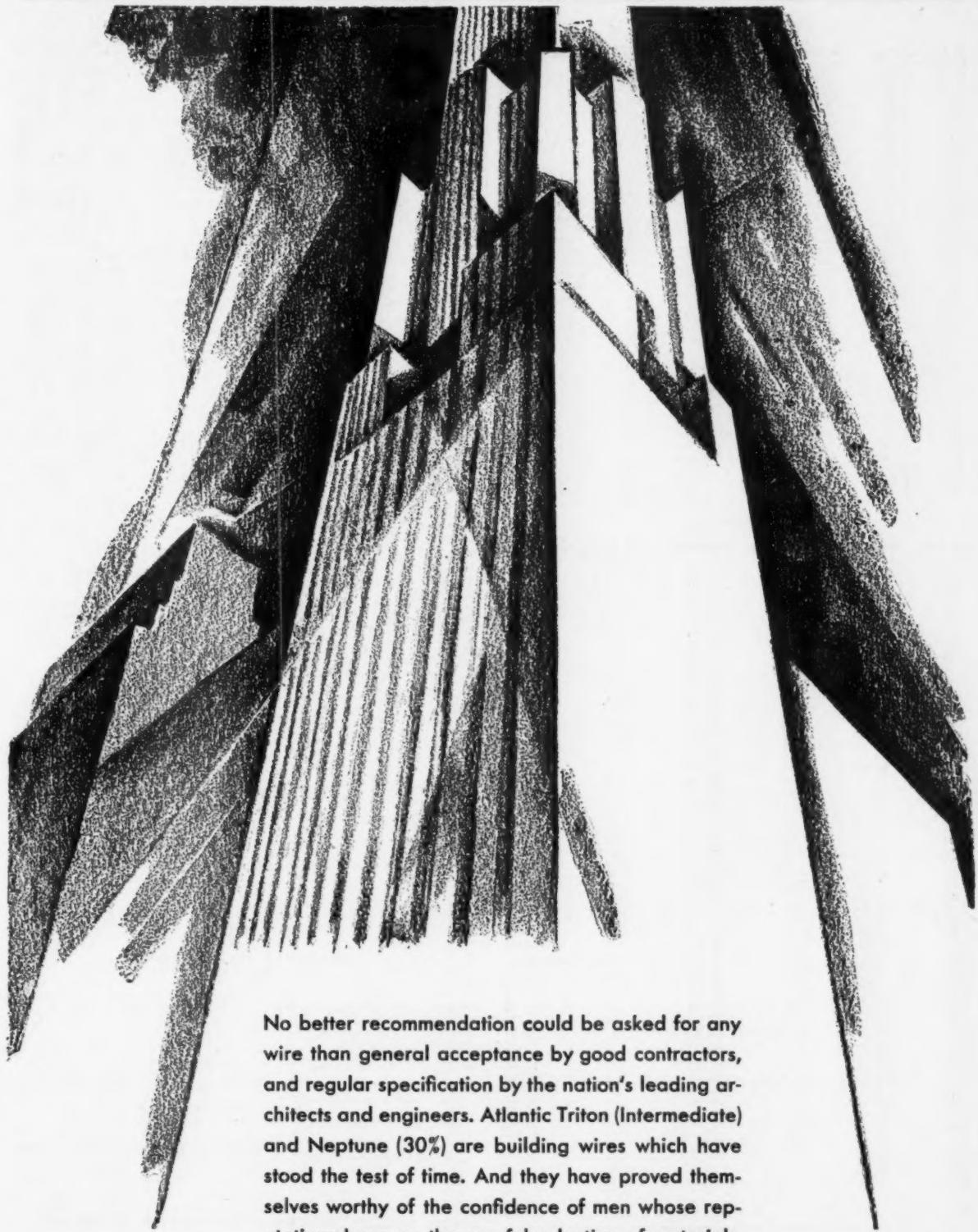


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PL-26

S-Sundries

Switches

Wadsworth

30 Amp. Switches							
No.	Price	No.	Price	No.	Price	No.	Price
3	\$4.90	223	\$2.40	1203	\$3.95	2212	\$4.05
8	1.90	224	3.00	1212	4.00	2223	4.25
12	1.00	225	3.75	1223	4.45	2330	9.15
15	1.25	241	5.05	1250	3.30	2334	9.85
17	3.30	242	4.70	1322	4.15	2351	3.80
21	3.30	243	5.05	1323	4.75	2441	6.55
25	2.20	244	4.70	1401	4.10	2461	6.55
25T	3.10	271	4.00	1402	3.65	2462	6.20
26	2.65	272	4.00	1403	3.95	2463	6.55
27	2.50	273	4.70	1401T	4.60	2464	6.20
30	1.55	274	4.40	1402T	4.05	2534	6.75
31T	2.75	284	4.80	1403T	4.25	2632	3.25
33	1.65	292	4.00	1411	4.50	2633	4.65
33T	2.90	294	5.35	1411T	5.15	2634L	6.25
38	2.50	322	6.20	1412	3.95	2639	4.65
39	3.75	331	4.85	1412T	4.35	3032	11.15
99	.10	332	5.55	1423	4.40	3033	12.00
100	.10	340	4.75	1423T	4.85	3532	9.10
101	.50	341	5.05	1450	2.30	3133	10.00
131	3.90	300	3.20	1450T	3.80	3134	13.30
132	3.30	362	4.15	1451	3.50	3339	10.00
133	3.90	370	4.15	1451T	3.95	3632	16.80
141	4.15	372	4.95	2202	4.50	3633	21.15
142	3.75	380	4.65	2202T	4.90	3634	22.05
143	4.15	382	4.70	2203	4.50	3639	21.10
144	4.55	392	5.05	2203T	4.90	8531	8.90
145	4.95	440	6.20	2212	4.75	8532	8.45
151	3.40	441	6.55	2212T	5.15	8533	9.75
152	3.00	443	6.55	2223	4.75	8534	12.45
153	3.40	461	6.55	2223T	5.15	8539	9.75
154	4.45	462	6.20	2230	10.40	9531	15.45
211	4.15	463	6.55	2234	11.25	9532	13.70
212	3.75	464	6.20	2250	3.85	9533	15.45
213	4.15	633	5.35	2250T	4.25	9534	17.75
214	3.75	734	11.15	2251	3.85	9539	15.45
221	2.65	1013	4.20	2251T	4.25	9862	8.45
222	3.00	1014	6.10	2284	6.20	9863	8.90
		1202	3.65	2294	6.55	9864	13.90

Wadsworth

60 Amp. Switches		100 Amp. Switches		200 Amp. Switches		400 Amp. Switches	
No.	Price	Number	Price	Number	Price	Number	Price
6	\$10.45	10	\$12.15	20	\$16.20	40	\$22.00
161	9.60	103	15.70	522	19.80		
162	9.15	110	16.55	523	24.95		
163	11.80	111	16.55	728	27.05		
171	8.85	112	15.70	729	51.90		
172	9.15	113	18.95	734	37.35		
503	11.45	513	17.25	729	32.00		
1024	13.30	1093	11.55	1042	14.20		
1763	16.80	1094	16.50	1043	22.00		
1763	22.75	1712	27.35	1044	31.35		
1764	21.45	1713	35.40	9622	18.15		
1769	21.70	1714	35.00	3628	21.45		
1769	13.90	1719	30.90	2624L	40.85		
1800	14.75	1900	22.60	2629	19.80		
1803	15.65	1902	23.45	2812	11.55		
1813	15.65	1903	24.35	2813	14.35		
1830	19.10	1912	24.35	2819	15.90		
1834	20.60	1930	28.70	3212	10.20		
1842	16.65	1934	30.50	3213	11.55		
1848	16.50	1942	24.35	3528	27.20		
1851	14.75	1943	26.05	3528	31.15		
9030	15.65	1951	24.35	3524	45.15		
2034	17.40	2130	25.20	3529	31.15		
2042	13.50	2134	26.95	3622	41.60		
2043	14.35	2142	21.75	3623	47.85		
2051	12.60	2143	25.50	2624	53.20		
2664	13.80	2151	21.75	3626	47.85		
2961	8.45	2614	25.60	4603	54.45		
2962	8.00	2814L	23.10	4643	50.40		
2963	9.30	2819	14.65	4630	59.75		
2964L	13.30	5512	14.65	4634	64.70		
2969	9.30	5513	17.75	4734	49.75		
3162	15.95	5514	25.60	4743	44.50		
3163	17.75	3519	17.75				
3262	8.00	3612	24.85				
3263	8.45	3613	31.95				
3562	9.75	3614	35.90				
3563	11.55	3619	31.95				
3564	13.75	3511	14.65				
3569	11.55	8512	12.45				
3662	17.05	8513	15.55				
3663	22.05	8514	27.50	1052	36.30		
3664	24.00	8519	15.55	1053	47.85		
3669	22.08	9511	29.30	1054	66.00		
3561	9.30	9512	24.85	2542	49.50		
3562	8.90	9513	29.30	2543	61.00		
3563	10.20	9514	39.00	2544	66.65		
3564	14.20	9519	29.30	3542	54.45		
3569	10.20	9812	10.65	3543	78.40		
9561	18.53	9813	12.00	3544	94.05		
9562	14.65	9814	21.45	3549	78.35		
9563	18.55			4903	90.00		
9564	23.25			4820	129.35		
9569	18.55			4934	137.55		
				4843	112.20		
				4934	113.00		
				4943	101.00		

EXTRA END WALLS—SHUTTERS—TRIMS—ETC.

Wadsworth

Type of Trim		Knock-out & Shutters	Meter
Flat	Extended	Shutter	Shutter
\$.30	\$.50	\$.30	\$.17
" 30 "	" 250 "	.50	.85 .25
" 60 "	" 250 "	.65	.85 .25
" 60 "	" 250 "	.75	.90 .50 ..
" 100 "	" 250 "	.82	1.00 .82 .45 ..
" 100 "	" 250 "	.90	1.10 .90 .50 ..
" 200 "	" 250 "	1.00	1.15 1.00 .50 ..
" 200 "	" 250 "	1.10	1.25 1.10 .55 ..

Murray Switches

ENTRANCE SWITCHES				With End Walls
30 Amp.	Number	Volts	Description	2 Pole 3 Pole
630	125	1	Blade—1 Plug Fuse S. N.	\$1.60 ..
231-230	125-250	2	—2	1.70 \$2.40
641-2-6	125	For 1 HP—250 V.—AC & DC Motors.	1.80 ..	
643	230	3 Blades 3 Cartridge Fuses.	3.20 ..	
647	125-250	2 " 2 " 2	S. N.	2.50 ..
830	125-250	2 " 2 " 2	Sealed Fuses S. N.	4.00 ..
831	125-250	2 " 2 " 2	2 Plug Sealed Fuses S. N.	2.25 ..
780-782	125-250	2 Plug Fuses 2-2 Wire Branches.	\$5.80 \$6.80	
781-783	125-250	4 " 4 " 4	6.55 7.55	
784	125	2 " 1 " 1	6.60 ..	
785	125	4 " 2 " 2	7.30 ..	

x—Made with cover to permit sealing fuses independent of main cover.

POLYPHASE ENTRANCE & SERVICE

POLYPHASE ENTRANCE & SERVICE				Without End Walls
Entrance Amps.	Nos.	Description	3 Wire 4 Wire	3 Wire 4 Wire
30	792-2	Three Legs Fused.	\$11.60	\$11.60
60	760-9	Four Wire Solid Neutral.	19.40	20.00
100	710-12	All 3 Pole 3 Phase.	29.05	29.95
200	720-22	.....	44.55	51.85
Service	30	791-3	Three Legs Fused.	\$11.60 \$15.60
	60	767-8	Four Wire Solid Neutral.	20.70 23.90
	100	711-14	All 3 Pole 3 Phase.	30.80 33.25
	200	721-23	.....	51.85 90.75

"UNISAFTI"

(Universal Standardized Switches)

"UNISAFTI"				Without End Walls	
Number	Pole	Fuse	Neutral	Branches & Fusing	Price
235B	2	Single	2-2-Wire	2 Fuses	\$3.25
236	2	2	4-2-	2	4.30
237	3	Two	1-3-	2	3.75
237	2	"	1-2-	2	3.75
237	3	"	2-2-	2	3.75
238	3	"	2-2-	4	4.85
238	2	"	2-2-	4	4.85

SEALABLE MAIN FUSES

SEALABLE MAIN FUSES				Without End Walls
30 Amp.	2 Pole</			

TAPE

FRICTION TAPE

Amazon	Friktion	Per Pound	Per Half Pound	Per 2 Ounces	Per 1 Ounce	Per Foot
Axle	"	.65	.35	.10	.05	.01
Axle	"	.55	.30	.10	.05	.01
Bulldog	"	.70	.40	.10	.05	.01
Clinton	"	.65	.35	.10	.05	.01
Commodity	"	.60	.30	.10	.05	.01
Dutch Brand	"	.65	.35	.10	.05	.01
Everstick	"	.60	.30	.10	.05	.01
Eaco	"	.95	.50	.15	.10	.02
G. E.	"	.55	.30	.10	.05	.01
Grimshaw	"	2.00	1.00	.25	.15	.03
Holdfast	"	1.00	.50	.15	.10	.01
Holdrite U. S.	"	.55	.30	.10	.05	.01
I X L	"	.75	.40	.10	.05	.01
Illinois	"	.55	.30	.10	.05	.01
Johns Manville Armature	"	1.75	.90	.20	.10	.02
Jomarco	"	1.00	.55	.15	.10	.02
" " White	"	1.35	.70	.20	.10	.02
" " No. 3 Now No. 5	"	.55	.30	.10	.05	.01
" " No. 6 "	" 40	.50	.25	.10	.05	.01
Jaxon	"	.60	.30	.10	.05	.01
Leader	"	.70	.35	.10	.05	.01
Manson	"	1.25	.65	.20	.10	.02
Magnet	"	.75	.40	.10	.05	.01
O. K.	"	.60	.30	.10	.05	.01
P & B.	"	1.00	.50	.15	.10	.02
Paragon	"	1.65	.85	.20	.10	.02
Service	"	.90	.45	.15	.10	.02
Spanat	"	.55	.30	.10	.05	.01
Sticks	"	.50	.25	.10	.05	.01
Security	"	.45	.25	.10	.05	.01
Victor	"	.55	.30	.10	.05	.01
Vim Gray	"	1.10	.60	.15	.10	.02

RUBBER TAPE

Amazon	Rubber	\$0.95	\$.50	\$.15	\$.10	\$.04
Alexall	"	1.20	.60	.15	.10	.04
Alpha	"	1.00	.50	.15	.10	.04
Brooklyn	"	.65	.35	.10	.05	.03
Clinton	"	.65	.35	.10	.05	.03
Dutch Brand	"	.65	.35	.10	.05	.03
Elico	"	.60	.30	.10	.05	.03
G. E.	"	.55	.30	.10	.05	.03
Graybar Victor	"	.55	.30	.10	.05	.03
Holdfast	"	1.00	.50	.15	.10	.04
Imperial	"	.60	.30	.10	.05	.03
Illinois	"	.60	.30	.10	.05	.03
Okoite	"	1.50	.80	.20	.10	.04
Para	"	.75	.40	.10	.05	.03
Pittsburgh	"	.55	.30	.10	.05	.03
Relic U. S.	"	.50	.25	.10	.05	.03
Security	"	.55	.30	.10	.05	.03
U. S. Rubber	"	.65	.35	.10	.05	.03
Twin Tape Rubber & Friction	"	.75	.40	.10	.05	.03
USCO Westinghouse	"	.90	.50	.15	.10	.04

COUCH TELEPHONES

VESTIBULE TYPE

No. 74 Armored Cord Receiver Type	\$25.00
No. 74A Swing Arm Receiver Type	37.30
No. 74C Cordless Loud Speaker Type	30.75
Above prices are for telephones complete but do not include for any call buttons.	
Add for buttons—Janitor Calling Buttons if fitted.	.95
Add for Each Suite Calling Button	.95

SUITE TELEPHONES

Series 2800 to 2840 or 1900 to 40 Page 22 Bulletin No. 89 S. H. Couch Co.
Number of Buttons 0 1 2 3 4
Price Ea. Surface or Flush \$11.40 \$11.40 \$12.45 \$13.60 \$14.60

TELEPHONE CABLES

Number of Conductors	Braided Type "B"	Lead Covered Type "L"	
Number	Price per Foot	Number	Price per Foot
2	\$.14	L-8	\$.18
4	.15%	L-12	.21
12	.15%	L-16	.27
16	.18	L-21	.29
21	.22	L-21	.29
25	.24	L-25	.32
31	.27	L-31	.39
37	.30	L-37	.44

TIME SWITCHES

GENERAL ELECTRIC TIME SWITCHES

Type T-8B	Type T-9					
15 Amp. Indoor Service	20 Amp. In or Outdoor Service					
Single Pole	Double Pole					
110 V. 220 V.	110 V. 220 V.					
Type Cat. No. Price	Type Cat. No. Price					
T-8-B1 30x458 to 471	22.00	23.00	60 Cycle	10x637 & 38	\$44.00	\$45.00
T-8-B2 30x460 to 473	22.00	23.00	50	10x639 & 40	41.00	42.00
T-8-B3 30x462 to 475	22.00	23.00	Extra for Cutouts	4.00

HARTFORD TIME SWITCHES

Type	10	20	35	50
B Single or Double Pole	\$36.00	\$39.00	\$42.00	\$50.00
B Triple Pole	38.00	41.00	45.00	.....
C & D Single or Double Pole	39.00	42.00	47.00	52.00
C & D Triple Pole	41.00	45.00	49.00	.....
G Apt. Hall Light Control D. P.	38.00	40.00	.....	.....

HOROLECTRIC TIME SWITCHES

60 Amp. D. P. Eight Day Time Switch and Box	\$24.00
Automatic Electric Time Switch with Automatic Electric Time Motor	32.00
Eight Day Time Motor	12.00
Automatic Electric Time Motor	20.00

RELIANCE & RACINE SWITCHES

	10 Amp.	20 Amp.	30 Amp.	50 Amp.
Racine Type IR-2R	\$19.50	\$23.00	.....	.....
Racine Type 10-20-30-50	28.00	30.00	\$32.00	\$36.00
Racine Type 15 Triple Pole	.....	33.00	.....	.....
Apartment House Types A-B-C-D-E-F-G	30.00	30.00	.....	.....

SAUTER TIME SWITCHES

No.	Amps.	Poles	Description	Price
101	2	1	Clock operated, key wound 40 day clocks	\$52.00
111	10	1	" " " 40 "	56.00
121	15	2	" " " 40 "	60.00
201	2	1	Self winding	74.00
211	10	1	" " " "	80.00
321	25	2	Motor operated self winding clocks	105.00
341	40	2	" " " "	110.00
401	100	2	Motor operated Oil Break self winding clocks	190.00
431	200	2	" " " "	250.00
461	300	2	" " " "	280.00

TORK TIME SWITCHES OR CLOCKS

Description		Indoor	Outdoor	Switchboard
Single Pole 15 Amp. 125 Volt	#115H	\$20.00	#215H	\$27.50
Double " 30 " 250 "	#130H	25.00	#230H	32.50
Single " Double Throw	#166H	25.00	#266H	32.50
Contactor and Clock Combination				
\$76062- 60 Amp. 2 Pole AC.	\$50.00	\$75062- 60 Amp. 2 Pole DC.	\$70.00	
\$76102-100 " DC.	75.00	\$75102-100 " DC.	125.00	

ZENITH TIME SWITCHES

	10	20	30	60	100	200
	Amp.	Amp.	Amp.	Amp.	Amp.	Amp.
Model #110-8 Day	\$20.00	\$23.00	\$25.00	.....	.....	.....
Electric Wound-AC	40.00	.....	.....	.....	.....	.....
" DC	45.00	.....	.....	.....	.....	.....
Astronomic Dial-AC	79.00	.....	.....	.....	.....	.....
" DC	84.00	.....	.....	.....	.....	.....
Remote Con. Swhs. -AC	16.50	\$22.50	\$42.50	\$75.00	.....	.....
" DC	23.50	38.00	55.00	93.00	.....	.....

TRANSFORMERS

Name	Style	Clad	Watt	Secondary Volts	No. Price	No. Price
ED-WARDS	Steel	Clad	25	Single	86	\$ 1.25
	"	"	25	Three	86T	1.75
			25	Single	87	1.75
			25	Three	87T	2.25
			50	8-16-24	88	4.65
			75	8-16-24	89	9.00
			100	8-16-24	90	18.15
			50	3 to 18	870	3.50
			75	3 to 24	871	5.85
			100	2 to 30	872	8.75

	Wizard	10 Volt	230-101	1.00	230-102	1.15
Nucode	25	10 Volt	230-111	1.40	230-112	1.65
Tri-Volt	25	6 to 18V.	230-121	1.40	230-122	1.65
Porcelain Bell	25	Single	230-131	1.40	.....	.....
Out. Box Bell	25	Single	230-141	1.55	230-142	1.75
Heavy Duty	50	8-16-24	231-101	2.10	231-111	2.30
"	75	8-16-24	231-111	2.10	231-121	2.30
"	100	6 to 20	231-171	2.90	231-172	3.00
"	125	6 to 20	231-181	3.70	231-191	4.00
Blue Bell	10	8 Volt	6166	.....	.....	1.00
Tri-Volt	20	6 to 18	6163	.....	.....	1.40
Box Type	10	8 Volt	7166	.....	.....	1.40
Porcelain Case	10	8 Volt	4166	.....	.....	1.40
" Black Bell" -H. D.	50	6-14-20 V.	816-50</td			

Wires

WIRES

NEW CODE RUBBER COVERED WIRES

Special Price on No. 14 S.B. Wire

		Per Foot
In less than Coil Lots.		\$.01 1/2
In Coil Lots.		.01

	Other Sizes	No. 18	No. 16	No. 14	Price Per Foot	See Above
Fixture Wire Light.	No. 18	\$.01	\$.01 1/2			
" Heavy.	"	.01 1/2	.01 1/2			
Solid Single Braid.		.01 1/2	.01 1/2			
" Double "		.01 1/2	.01 1/2			\$.02
Stranded Sgl. Braid.		.01 1/2	.01 1/2	.01 1/2		
" Dble. "				.02		
Duplex Single Braid.				.03		
" Double "				.04		
Other Sizes	No. 12	Price Per Foot	No. 10	No. 8	No. 6	
Fixture Wire Light.	No. 12		No. 10			
" Heavy.	"					
Solid Single Braid.		\$.01 1/2	\$.02	.03	\$.05	
" Double "		.02 1/2	.02 1/2	.04	.05 1/2	
Stranded Sgl. Braid.		.02	.03	.04	.05	
" Dble. "		.02 1/2	.03 1/2	.04 1/2	.05 1/2	
Duplex Single Braid.		.04	.04 1/2	.07	.10	
" Double "		.05	.06	.09	.11	

LARGER SIZES DOUBLE BRAID STRANDED

Size	Per Foot	Size	Per Foot
No. 8 D. B.	\$.04 1/2	No. 0.	\$ 0.18
No. 6 D. B.	.05 1/2	No. 00.	.21
No. 4 D. B.	.07 1/2	No. 000.	.25
No. 3 D. B.	.09	No. 0000.	.31
No. 2 D. B.	.11	250,000.	.38
No. 1 D. B.	.15		

CIRCULAR MILL CABLE

Size	Per Foot	Size	Per Foot
300,000 C. M.	\$.44	700,000 C. M.	\$ 0.95
350,000 C. M.	.50	750,000 C. M.	1.02
400,000 C. M.	.55	800,000 C. M.	1.08
450,000 C. M.	.62	900,000 C. M.	1.20
500,000 C. M.	.68	1,000,000 C. M.	1.35
600,000 C. M.	.85		
Additions to Code Wire for 25% (Intermediate Grade) and 30% Wire.			
For Intermediate			
Sizes or 25% Wire	5%	10%	
From No. 14 to No. 1.	5%	10%	
From No. 1/0 to 4 0.	3%	6%	
From 250,000 to 400,000 C.M.	2%	5%	
From 500,000 to 1,000,000 C.M.	1 1/2%	3%	

WEATHERPROOF WIRE

Triple Braid

	Price	No. 16	No. 14	No. 12	No. 10	No. 8	No. 6
Per Pound Solid.	\$.61	\$.57	\$.53	\$.50	\$.45	\$.42	\$.41
" Stranded.					.52	.47	.45
Per Foot Solid.	.01	.01 1/2	.01 1/2	.01 1/2	.01 1/2	.01 1/2	.01 1/2
" " Stranded.	.01 1/2	.01 1/2	.02 1/2	.02 1/2	.02 1/2	.02 1/2	.02 1/2
Number Feet Per Pound...	70	50	40	30	20	15	

EXTRAS—For slow burning W. P. Wire—Per Pound Extra..... \$.01							
For Twisted Pair W. P. Wire—Per Pound Extra..... .02							
For Double Braid W. P. Wire—Per Pound Extra..... .01							
For Medium Hard Drawn—Per Pound Extra..... .00 1/2							

For Armored Cables See Part PL-9.

ANNUNCIATOR—TELEPHONE WIRE, ETC.

	Description	No. 18	No. 16	No. 14	No. 12
Fixture Wire	Solid Light 1/4 Per Foot.	\$.01	\$.01 1/2		
" Stranded	Light 1/4 "		.01 1/2	.01 1/2	
" " Stranded	Light 1/4 "		.01 1/2	.01 1/2	
	Heavy 1/2 "		.01 1/2	.01 1/2	

	Description	No. 18	No. 16	No. 14	No. 12
Single	Per Pound.....	\$.61	\$.58	\$.56	
"	Per Foot.....	.00 1/2	.00 1/4	.01	
Twisted or Duplex	Per Pound.....	.66	.64	.62	
"	Per Foot.....	.01	.01 1/2	.02	

	Description	No. 18	No. 16	No. 14	No. 12
Single	Per Pound.....	.73	.68	.64	
"	Per Foot.....	.01	.01 1/2	.02	
Twisted or Duplex	Per Pound.....	.76	.71	.68	
"	Per Foot.....	.02	.03	.04	

	Description	No. 18	No. 16	No. 14	No. 12
Single	" Deltabeston" or similar	.02 1/2	.03	\$.04	\$.05
"	Single Stranded Colored Per Foot.....	.03	.03 1/2	.04 1/2	.05 1/2
"	Single Glazed Cotton Per Foot.....	.03	.04	.05	
"	Single Artificial Silk Per Foot.....	.04	.05	.05	
"	Duplex Glazed Cotton Per Foot.....	.07	.08	.09	
"	Duplex Artificial Silk Per Foot.....	.08	.09	.10	
"	Twisted Pair Glazed Cotton Per Foot.....	.07	.08	.10	
"	Twisted Pair Artificial Silk Per Foot.....	.08	.09	.10	

	Description	No. 18	No. 16	No. 14	No. 12	No. 10	No. 8
Asbestos Range Wire or Switch Board	Wire Single Solid—Per Foot.....	.07	.08	.09	.10	.12	.14

COVERED TELEPHONE WIRES

	Twin Pair Plain Pothead Copper Wire.....	Per Foot.....
No. 22— $\frac{1}{2}$	Twin Pair Flame Proof Copper Wire.....	.04
No. 22— $\frac{1}{2}$ & S	Twin Pair West. Elect. Flameproof Jumper Wire (Enam.)	.06
No. 19— $\frac{1}{2}$	Twin Pair Flame Proof Copper Wire.....	.04
No. 19— $\frac{1}{2}$	Twin Pair Dry Braid Interior Copper Wire (Olive).....	.02
No. 19— $\frac{1}{2}$	3 Conductor Ditto.....	.03
No. 18— $\frac{1}{2}$	Twin Pair Bridlewire, Saturated Braid.....	.03
No. 14— $\frac{1}{2}$	Twin Pair Outside of Bridle Saturated Braid.....	.04

Note—For Prices of Sgl. Conductor use $\frac{1}{2}$ of above prices per foot.

GALVANIZED TELEPHONE WIRE

Size	Size BWG	No. 4	No. 6	No. 8	No. 10	No. 12	No. 14
EBB Extra Best	Per Pound...	\$.12	\$.12	\$.12	\$.12	\$.12	\$.12
B. B. Best	" "	.11	.11	.11	.11	.11	.11
Steel	" "	.10	.10	.10	.10	.10	.10
Weight Per 1000 Feet.....		153	112	74	49	32	19
Weight Per Mile.....		811	590	390	258	170	99

WIRE, MAGNET
Price Per Pound

Size	Single Cotton	Double Cotton	Single Silk	Double Silk	Plain Enamel- ed	Enamel- ed Double
8	\$.63	\$.66	.....	.....	\$ .63	\$.67
10	.65	.68	.....	.....	.64	.69
12	.67	.72	.....	.....	.65	.76
14	.70	.74	.....	.....	.67	.86
16	.72	.76	\$ 1.02	\$ 1.26	.68	.82
18	.78	.83	.11	.14	.72	.81
20	.83	.96	.14	.16	.74	.90
22	.93	1.04	.16	.19	.76	.96
24	1.00	1.22	.20	.24	.80	1.05
26	1.10	1.37	.20	.24	.83	1.24
28	1.28	1.70	.20	.24	.90	1.30
30	1.60	2.15	.30	.36	.95	1.76
32	1.78	2.43	.20	.24	1.00	2.00
34	2.22	3.15	.36	.48	1.13	2.42
36	2.88	4.08	.52	.68	1.30	3.24
38	5.06	7.60	8.36	13.90	1.54	5.55
40	.....	.....	.....	.....	1.86	.....

NOTE: For odd sizes use half the increase of next larger size.
For 1/4 lb. lots use one third of above prices.
For one ounce lots use one tenth of above prices.

LEAD & RUBBER COVERED WIRE AND CABLE

Size	Solid	Stranded	Two Conductor	Solid	Stranded	Duplex	Three (3) Conductor
No. 14	Price Per Foot	\$.04	\$.05	\$.07	\$.08	\$.14	\$.16
No. 12	" "	.05	.06	.10	.12	.16	.18
No. 10	" "	.07	.08	.12	.13	.20	.25
No. 8	" "	.09	.10	.15	.17	.24	.30
No. 6	" "	.12	.14	.20	.25	.32	.50
No. 4	" "	.17	.....	.....	.....	.....	.....
No. 3	" "	.20	.....	.....	.....	.....	.....
No. 2	" "	.28	.....	.....	.....	.....	.....
No. 1	" "	.34	.....	.....	.....	.....	.....
No. 1/0	" "	.39	.....	.....	.....	.....	.....
No. 2/0	" "	.45	.....	.....	.....	.....	.....
No. 3/0	" "	.52	.....	.....	.....	.....	.....
No. 4/0	" "	.....	.....	.....	.....	.....	.....

250,000 C. M. Cable..... .64

300,000 C. M. "..... .72

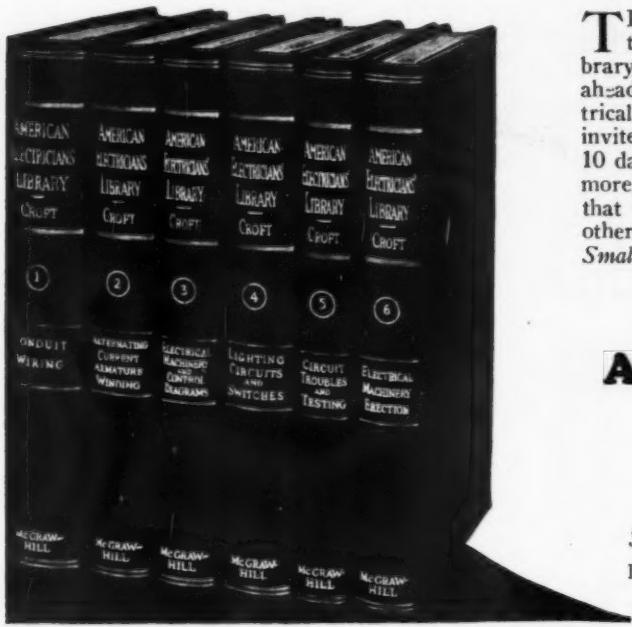
350,000 C. M. "..... .80

400,000 C. M. "..... .88

500,000 C. M. "..... 1.03

600,000 C. M. "..... 1.35

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\$1.50 in ten days and \$2.00 monthly for 8 months.

Send no money—see these books for 10 days

Let us send you these fact-packed books for ten days' free examination. There is no charge for the examination—no obligation to buy the books unless you want them. These books have helped, and are helping, so many men that it is no longer a question of "Will they help you?"—the question is "Will you let them help you?" We could fill several pages with arguments telling how so many thousands of men have profited by the American Electricians' Library. But, our arguments won't increase your salary—so we'd like to leave it to the books—and we'll stand or fall on the outcome of your examination. You will agree that this is a liberal offer; and, frankly, we couldn't afford it if this examination offer didn't usually convince. We know how good these books are—we want you to see them for yourself.



FREE!
if you act now

Braymer and Roe's REWINDING SMALL MOTORS comes to you absolutely free if you act now in getting your AMERICAN ELECTRICIANS' LIBRARY. This book will give you much practical information about rewinding all types and designs of fractional horse-power motors.

A Valuable Book Absolutely Free

After you have seen these books at your leisure—after you have used them in your work—decide whether or not they are going to help you. Then, return the books or remit only \$1.50 and then \$2.00 a month until \$17.50 has been paid. On receipt of your first payment Braymer and Roe's *Rewinding Small Motors* will be sent you absolutely free.

Fill in and mail this coupon now

MC GRAW-HILL FREE EXAMINATION COUPON

McGraw-Hill Book Co., Inc., 370 Seventh Ave., New York.

Gentlemen: Send me for 10 days' free examination, all charges prepaid, the AMERICAN ELECTRICIANS' LIBRARY, 6 volumes. If I find the books satisfactory, I will send you \$1.50 in ten days, and \$2.00 a month until the Special Price of \$17.50 has been paid. If they are not what I want I will return them. Upon receipt of my first payment you agree to send me a free copy of *Braymer & Roe's Rewinding Small Motors*.

Signature _____

Residence Address _____

City and State _____

Firm or Employer _____

Occupation _____

E.C. 8-30

T. B. Hatfield Dies

Theodore B. Hatfield, chairman of the board of directors of the Hatfield Electric Co., Indianapolis, Ind., died at his home on July 13.

Mr. Hatfield was born January 15, 1874, in Dayton, Ohio, and when a boy came to Indianapolis with his parents. With his father, Charles C. Hatfield, Mr. Hatfield organized the Hatfield Electric Co., and upon the death of his father in 1915 he became president and general manager. Under his management the firm became one of the largest electrical contracting companies in the United States, with branch offices in Chicago and Cleveland.

Mr. Hatfield retired two years ago as president in order to devote his time to other holdings.

* * *

San Antonio Chapter Establishes Office

The San Antonio (Tex.) Chapter of Electragists reports that the organization is getting under way in good shape. An office has been established in the Real Estate Building and working plans have been made.

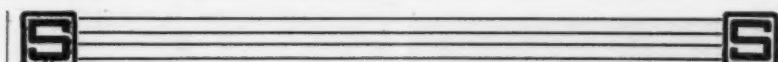
* * *

Galesburg League Operating Franklin Plan

The Electrical League of Galesburg, Ill., is now licensed to operate the Franklin plan and at the present time the league is conducting a light-



AWARDED LARGEST WIRING CONTRACT IN FORT WAYNE:
Paul Thiele, manager of the Dix Kelly Co., is doing the electrical work on the Lincoln Tower building in Fort Wayne, Ind. This job, which is now nearing completion, is the largest wiring contract ever let in Fort Wayne.



New!!! **SHERMAN** **Tinned Splicing Sleeves** for Stranded Conductors



This Tinned Splicing Sleeve meets exactly the specifications recommended by the Underground Systems Committee of the N. E. L. A.

Sherman Sleeves are made of the highest quality dead soft annealed pure copper, of ample tensile strength. This permits a very tight mechanical clamping around the conductor before soldering.

Actual tests indicate that these Sleeves have no tendency to overheat.

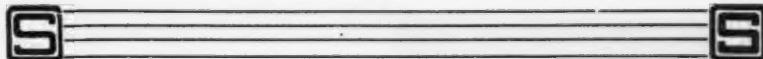
Surfaces are smoothly tinned, making for ease and quickness of soldering.

For use on round or sector shaped cables.

*Samples Furnished on Request
Sold Thru Jobbers*

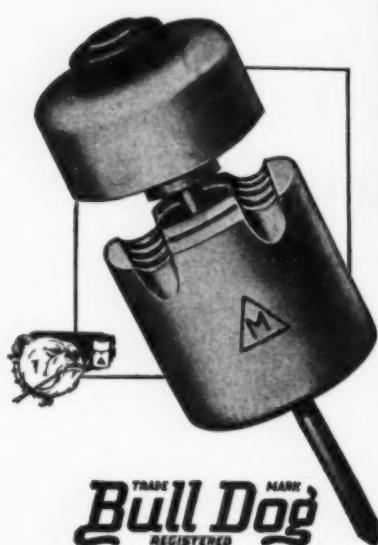
H. B. SHERMAN MFG. CO.

BATTLE CREEK MICHIGAN





"It has a grip like its namesake"



Split Knobs

THESE are the safe, approved knobs for all types of residence wiring. They mean better jobs at no added cost. Bull Dog Split Knobs, together with Illinois Porcelain Tubes, Cleats and Solid Knobs form a complete line of standard porcelain.



Sold Through Wholesalers

Illinois Electric Porcelain Co.
Macomb, Illinois



TOLEDO CONTRACTOR SPECIALIZES IN MOTOR SERVICE: H. Girkins, a Toledo contractor, specializes in industrial motor repair work. In order to give the best service he has one of the most up-to-date motor repair shops in Toledo.

ing campaign directed to the merchants, and to the factory and office building owners. When this program is completed, one thousand nine hundred sixteen letters will be in the hands of business people in Galesburg.

* * *

New Wisconsin Code Defines Rigid Conduit

A fine definition of rigid steel conduit is said to be included in the new Wisconsin State Electrical Code, on which a final public hearing was held recently. No part of the new Code is as yet released, as final proofreading is not completed.

The new state Code has a wide scope in that it is made up of the National Electrical Code, the National Electrical Safety Code and the previous State Code.

* * *

Colorado League Extends Red Seal Service

The Electrical League of Colorado, through local representatives, plans to extend its Red Seal activities to cover a larger territory. Within the current year it is hoped that no less than thirty towns in Colorado will be receiving the services of the league through these representatives. However, under the license provisions, the league is not permitted to extend these activities to those communities that are not contributing to its support.

Summer's Heat Winter's Stuffiness

Bad Air Has
No Off-Season

Every Business Needs the

Meier Nu-air

the Year-Round



A Bank and a Laundry

The Banker says: "We are well satisfied with the Meier Nu-air Fan purchased over a year ago. It does not take over two minutes to change the air, and two more Nu-air fans have been sold in our city by seeing it work in our bank building."—Farmers Security State Bank, Zumbrota, Minn.

The Laundry Manager says: "The Meier Nu-air Fan has been installed, and we must admit that it sure does move the air."—Crown Laundry Co., Lafayette, Ind.

2 cents well invested

Write today for Distributor Proposition

MEIER ELECTRIC & MACHINE CO.
3500 E. Washington St.
INDIANAPOLIS, IND. Inc. 1904

Toledo Chapter Prints Wiring Symbols

The Toledo Electrical Contractors' Association has had printed on cards, which can be hung on the wall, a complete set of Standard Wiring Symbols. The card contains 85 symbols as recommended and adopted by the Association of Electragists.

* * *

Minneapolis League Sponsors Farm Exhibit

The Electric League of Minneapolis, Minn. will be host to electrical contractors attending the Minnesota State Fair, August 30 to September 6. The league building at the fair will serve as headquarters for all electrical men and their friends.

Under the sponsorship of the league there has been erected a complete model farm on which will be demonstrated to electrical contractors proper and adequate farm installations. Two engineers will be in attendance to go into technical details of farm wiring.

The farm will also be used to demonstrate adequate wiring and the use of various farm appliances to the farmers attending.

Letters have been written to 1400 contractors inviting them to attend and getting from them names of farmers who might be interested as good prospects.



IN BUSINESS TWENTY-THREE YEARS:—Mr. Barnes (right) of Barnes & Armbruster, electrical contractors, Scranton, Pa., looks after the management end of the business. Mr. Armbruster is always on the operating end of the different construction jobs in work. This firm just completed the wiring work on remodeling the Scranton Electric Co.'s merchandising display rooms.

Easy to Create Business!

The best part of being a specialist on floodlighting is that you can go out and create business all the time. . . . We have listed some 200 uses for floodlighting—new Buildings, Parks, Danger Points, Crossings, Railroad and Factory Yards, Banks, Private Garages, Driveways, Filling Stations, Golf Courses, etc., and this information is now available for you.

Write for these sales helps today and cash in on demands for night illumination everywhere.



Type SJ-204 for Heavy Duty Service

National Appliance Co.
Jackson, Mich.

Division of Reynolds Spring Co.



National FLOODLIGHT PROJECTORS

Send for Your Copy of



Catalog 30



Theatre, store, showroom, hotel, gymnasium, playground and golf course lighting contracts can be got and made more profitable by using this new handbook. Read it through and you are ready to cash in on big-pay work. Use it in your regular daily figuring and get good profits in spite of price-cutting competition and slow building. Just mail the coupon.

Belson Manufacturing Co.
804 Sibley St. Chicago, Ill.

BELSON MFG. CO.
804 Sibley St., Chicago, Ill.
Send me, free, my copy of Catalog 30.

Name.....

Address.....

City..... State.....

CARRY A Test-O-Lite

In Your Pocket — ALWAYS



The First Practical Pocket Tester
For Testing High Resistance Leaks

You Already Know — that TEST-O-LITE, with its tiny Neon lamp, instantly detects trouble in electrical circuits, locates burnt-out fuses, light and motor troubles, faults in electrical appliances, auto spark plugs and radio sets.

But, Do You Know — that TEST-O-LITE has the remarkable characteristic of becoming illuminated at 110 volts through resistance of 20,000,000 ohms (20 megohms) and frequently as high as 50,000,000 ohms (50 megohms)?

The advantage of this feature will be appreciated by all engineers and electricians who desire to test insulations of wires or instruments. It rivals the bridge, megger and other electrical testing apparatus in determining the presence of a leaky insulation.

LIST PRICE \$1.50

L. S. BRACH MFG. CORP.
Specialists In Electrical Protective Devices for 24 Years
Newark, N. J., U.S.A. • • • Toronto, Canada



Trester Air Cooled Transformers

For
LIGHTING
SYSTEMS and other
INDUSTRIAL USES

REPLACE condemned balancing coils with transformers that conform to the New Code. They are safe, economical and efficient in operation.

Connect lighting load to 220, 440 or 550 volt power mains.

A field for business during the slack months.

Representatives desired in principal cities and Industrial centers.

TRESTER SERVICE ELECTRIC CO.
69 Ogden Avenue at Market Street, Milwaukee, Wis.

"Trester Service Since 1908"

Send for our
Bulletin 527

A ROLL O' TAPE



Electrical flashes gathered among the Big Wire-and-Pipe Men by

Coit A. (Duke) Smith
Field Editor, ELECTRICAL CONTRACTING

ROBERT LIDDELL, Liddell Electric Co., Waterbury, Conn., sure has the right idea in educating his customers on right prices instead of low prices. He has gained their confidence to the extent that he can render a bill similar to that of a physician. "For services rendered, \$—," is the way his invoice reads. At the bottom is a line: "Itemized bill on request," but only about one customer in ten asks for the details.

PUT this in your book as another glimpse of Electrical Heaven. I was with Charlie Kosek, Cedar Rapids, Iowa, watching his boys finish a filling station job near the Kosek shop. We had only been in the office a few minutes after leaving the job, when the customer's wife appeared, asked for the invoice and paid it on the spot.

CARL S. ZINK, Cincinnati, Ohio, sells a real lighting job when going after miniature golf lighting jobs. Although a certain customer had in mind a larger number of small units, Zink recommended a radical change. He insisted that four 1000-watt units, costing \$160, placed high above the course, would make a better job than 36 150-watt units, costing \$180, placed close to the ground. He showed how the illumination is far superior and in addition cites the relief of the players from the swarms of bugs which gather around the lights.

"NEVER again!" says a Baltimore contractor who took a wiring job on a very fine home at near cost. He figured low because the owner promised to buy the fixtures from him. When all the extras were in there was no money left for fixtures. The result was a \$50,000 home with one beam light in each room. The total cost of the fixtures was \$17.

WHEN H. C. Bennett of the Spence Electric Store, Altoona, Pa., is called on a small repair job, he reminds his customers that their kitchen or bathroom fixtures are obsolete and carries along a new sample to show the difference. As a result he frequently makes the sale and installs the unit while right on the job.

THREE is a man in Trenton who has lost his proper name. His friends might be interested in knowing that J. P. Kelly is the real name of Kall' Kelly. Years ago Kelly signed a newspaper advertising contract. He was too busy to think up an ad at the time, so he told the solicitor to run it: "For things electrical 'KALL' KELLY." As he never got around to change the ad, it ran that way for a year. Before the year was up a great deal of his mail began coming in addressed to K. Kelly, and people with electrical work to be done phoned in to ask for Mr. Kall Kelly.

MEMBERS of the Toledo Electrical Contractors' Association are displaying their presence on the job by all using standard signs. These signs are made up in quantity lots at a special price to the association and carry the name of the association as well as the contractor.

A PORTLAND, Ore., electrical contracting firm recently had 300 people at its own private second annual picnic. The firm was the Jaggar Sroufe Co. and the people were the 60 odd employees with their friends and families. The picnic was held at Sam Jagger's country place on the Clackamas River.

BOOKS Attract Customers to the Store. This novel means of increasing store sales was discovered by accident in the Electric Shop at Tracy, Calif. As a favor to a friend, a small circulating library was brought into the store. It was found to attract people into the store, with the result that electrical sales were stimulated.

THIE International officers now fly to meetings. J. A. Fowler, chairman of the Trade Policy Committee, and L. W. Davis, general manager of the A. E. I., recently flew the 300 miles from Dallas, Tex., to Tulsa, Okla., to keep their engagement to speak at a meeting of the Electragists in Tulsa.

TWENTY-FIVE years ago Elmer Wilson, of Newark, took two important steps in his career. He married and went into business for himself at the same time. A dinner was recently held in his honor to celebrate his success in both ventures.

THE Mercer Electric Co., Trenton, N. J., does not worry about the men keeping busy on a job. This firm estimates the amount of time that should be required to complete a job. If it is done in less time the added profits are divided with the foreman and their regular employees. The result is that the men acquire the habit of helping the boss to think up short cuts for a job. Moreover, if extra men are used for a job the foreman does not need to watch them. His own men will tell them to "shake a leg" if necessary.

RUGGED RALCO RECEPTACLES

Type A Type D Type PRG Plug

Type B Type II Type HF

You may pay more, but you cannot buy a more dependable Heavy Duty Circuit Breaking Receptacle and Plug than the RALCO Switch Blade Contact Type.

250 Volt D. C. 600 Volt A. C.
Write for Bulletin No. 101-A.

Ralco Manufacturing Company
Designers & Manufacturers
125 No. Albany Ave.,
Chicago, Ill.



"GALVADUCT" was specified by the Architect. No time was lost because of bad threads and it was easy to bend.

Garland Manufacturing Co.
Pittsburgh, :: Penna.

TIME IS MONEY-

The Jiffy Line

WILL SAVE YOU TIME...



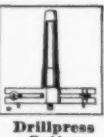
Box Cutter

**The Job
in
a Jiffy**



Pipe Bender

—with
a
Jiffy



Drillpress
Cutter

"Satisfaction guaranteed or your money back," has been and will continue to be the policy of this company. Let us send you literature describing our quality line of tools. Write us at once.

ESTABLISHED 1915

**PAUL W. KOCH
& COMPANY**

20 N. Wacker Drive, Chicago

A COMPLETE LINE



For Outdoor Service
Type MO

Nothing to worry about when you "standardize with STANDARD." For inside and outside work—mills, factories, mines, office and apartment buildings—any place where inductively coupled high efficiency moderate capacity is required. Compound, Oil and Air filled. Easy and profitable to install. No come backs. Mail coupon today.

**The STANDARD TRANSFORMER CO.
WARREN, OHIO**

Gentlemen: Kindly send me bulletins describing and illustrating your complete line of "Standard" Transformers.

Name.....

Address.....

City.....

State.....

Editor's Mail

(Continued from page 38)

wires). The code has for years prohibited more than nine wires to be placed in one conduit because of the danger of burning the insulation off all of the wires in case that the insulation on one of the wires becomes ignited. That this danger is present is proven by losses which have occurred on which thousands of dollars of damage would have been avoided had the number of wires in one space been kept to the maximum of nine.

Inspection departments all over the country, as well as the more thoughtful contractors and engineers, have been pounding for the same limitation to the number of wires to be allowed in troughs, gutters, pull and junction boxes, etc., as is now put upon conduit work. And this limitation should probably be more rigid because, in the case of the larger spaces used for confining the wires, there is much more air to support combustion than there is in conduit.

There are two ways in which the hazards may be minimized. One is to divide the wire space, whether it be in a pull box, or trough, or what have you, into separate compartments by means of barriers, each compartment to have not over the regular limited number of wires. The other method is to provide a flameproof covering for the wires. Such an arrangement is required by the inspection departments in New York City and is secured by wrapping asbestos tape over the wires or slipping an asbestos sleeve (spaghetti) over them. Where the number of wires in a space is so great as to provide insufficient room for the wrappings of each separate wire, the wires emerging from one conduit are kept together and placed within one wrapping. Some very neat jobs have been turned out and the results have been the elimination of many hazards.

F. N. M. SQUIRES,
Assistant Chief Inspector, N. Y.
Board of Fire Underwriters.

* * *

Standard Offsets

Editor,

ELECTRICAL CONTRACTING:

Can you give me any good reason why the makers of iron conduit have never made a standard offset for iron conduit work? I have been in

the Spring's the thing!



Paine Spring Toggles work in any position in attaching your electrical fixtures to any hollow wall, ceiling or floor. Electrical contractors everywhere are using Paine Toggles because the exclusively patented spring feature makes installation so easy and speeds up the work—saving time and money. Order today from your jobber or write us direct giving us his name.

The Paine Company
2849 Carroll Ave., Chicago, Ill.
79 Barclay Street, New York City

P A I N E S P R I N G T O G G L E S



INTERCOMMUNICATING TELEPHONE SYSTEMS

These systems save time, are more efficient and much less expensive than talking through a switchboard.

Holtzer-Cabot Intercommunicating Systems are moreover dependable and are reasonably priced.

Send for Catalogue.

The Holtzer-Cabot Electric Co.

Executive Office and Factory
Boston, Mass.

Chicago	New York	Baltimore
Philadelphia	Pittsburgh	Cleveland
Syracuse	Detroit	Minneapolis
San Francisco	Los Angeles	

PIONEER MANUFACTURERS OF
COMPLETE SIGNALING SYSTEMS

**A
BIG
MONEY SAVER**

Eliminates triple handling—unwinding—measuring and rewinding wire, thus saving time and money. Manually operated—reels wire into neat coil, automatically counting and registering number of feet. Strongly built of heavy selected materials so as to last a lifetime.

It Pays for Itself

Send for bulletin.
Write us or your jobber.

**Minneapolis Electric
and Construction Co.**
50 S. 12th St.
Minneapolis Minn.



**A-1
&
JR**

Patent No. 1835295—1756878

**WIRE
CONNECTORS
for
perfect
connections**

SRK Wire Connectors make joints that are perfect, electrically and mechanically. Your customers are assured of a degree of safety that comes only with products that embody highest grade material and precision workmanship.

Size A-1 for all commonly encountered joints. JR. for 1 or 2 No. 14 Solid with 1 or 2 No. 18 Solid or Stranded or Equivalent.

Listed by Underwriters Laboratories

JIFFY WIRE CONNECTOR COMPANY

HACKENSACK, N. J.

General Sales Office
G. Denn. Montgomery, Jr.
458 Broadway, New York City
Phone Canal 7533

electric construction thirty years and have never seen an offset or advertising concerning such a fitting.

I realize that to make a fitting of this nature which would exactly fit all cases which arise would be next to impossible, but here are thousands of cases where the job could be made to fit the fitting the same as you must do when using condulets.

I recently had a job requiring 1½-inch conduit, a run of only 150 feet, but an offset of 2½ inches was required in this run. With labor \$1.25 per hour, I hate to tell you what it cost to make this offset.

We are not all big enough to handle a "Merchandise Mart" or a "Chrysler Building," nor can we afford to keep a hydraulic bender in our shop. The cost of coming to the shop to make a bend would be high. There are thousands of jobs which are small but where offsets in pipe are needed.

Take a case where there are several conduits running parallel to each other in a group; all must be bent around the same obstacle. The offsets should match each other for a good looking job. How easy this would be to do if we had a machine-made offset to insert in each run, and how hard it is to make a number of bends which are exactly alike with a hickey or other bender, as I know of none which has a limiting devise attached which would control the size of the offset.

My idea would be to start with say 1-inch conduit and make the throw of these fittings 1-inch, 2-inch, 3-inch, etc. As I said before, there are many jobs which can be made to fit the fitting.

Your comment and the comment of your readers on this matter would be appreciated.

H. W. HASELHUHN.
Springfield, Mass.

* * *

1,000 Attend Minneapolis League Picnic

The Electrical League of Minneapolis held its seventh annual summer outing and picnic on June 26. Golf, baseball, dancing and field events were on the program. Frank O'Mera, special representative of the Association of Electragists, made a trip from New York to attend this outing.

Clip and Mail !

Jackson Elec'l. Co.,
910 W. Van Buren St.,
Chicago, Ill.

Send me bulletin quoting new low prices on standard quality reflectors.

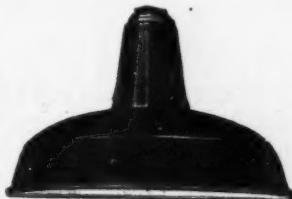
Name.....

Address.....

City.....State.....

for particulars on

JACKSON



REFLECTORS

**High Quality
Low Cost**

Industrial reflectors are a big item in the contracting business. We have cut the costs of making them to the bone and are passing a slice of the saving on to you. Now you can double your profit on industrial lighting material, and give your customers the best satisfaction. Jackson line of reflectors is complete. All Armco steel, covered with heavy porcelain enamel. Clean threads and attaching rings. Send coupon for prices today.

JACKSON ELECTRICAL CO.

910 W. VAN BUREN STREET
CHICAGO, ILL.

Manufacturers News

A department for the announcement of activities of manufacturers that are of interest to contractors, such as changes in executive personnel, branch offices, new products, etc.

Berresford Receives Fowler Award

Arthur W. Berresford, managing director of the National Electrical Manufacturers' Association, was presented on July 9 with the first prize of the Phebe Hobson Fowler Professional Award of the American Society of Civil Engineers, as a recognition of his excellent work as president of the American Engineering Council during the past two years.

* * *

Lamp Manufacturers to Have Add-A-Light Campaign

Many members of the electrical industry are coordinating their advertising and sales programs with the Add-A-Light Campaign. This activity is the result of the realization of the Mazda lamp manufacturers and the manufacturers of portable lamps that they together have an interest in improving the illumination of the home.

The Add-A-Light Campaign is set for late October and early November. This is the greatest lamp buying time of the year as people are turning their attention toward beautifying their homes. Also, as this closely precedes the Christmas season, the campaign will have created a market quite favorable to buying portable lamps as gifts.

A well-rounded publicity program has been arranged, featuring, among other things, a nation-wide radio broadcast on October 25 and from October 27 to 30 inclusive, it is planned to have four half-hour national programs to tell the attributes of good lighting. Direct mail advertising will also be available from the portable lamp dealers.

The entire sales forces of the Mazda lamp manufacturers, as well as those of portable lamp manufacturers have been united to increase portable

lamp sales which have amounted to over 5,000,000 annually for the last five years.

W. C. Bryant

Waldo Calvin Bryant, chairman of the board of Bryant Electric Co., Bridgeport, Conn., died at Colorado Springs on July 5.



W. C. Bryant.

Mr. Bryant was born at Winchendon, Mass., on December 17, 1863, and at the age of 14 he began to learn the machinist's trade. When he was 16 he entered Cushing Academy at Ashburnham, preparing for Worcester Polytechnic Institute, graduating from the institution in 1884.

After operating several electric light plants in Bridgeport and Waterbury, Mr. Bryant, in October, 1888, invented the Bryant push-and-pull switch and started in business of making electric light supplies under the name of Bryant Electric Co. in Bridgeport. In July, 1889, he incorporated the Bryant Electric Co. with a capital stock of \$5,000. Today the concern has a capitalization of \$3,000,000 and specializes in the

manufacture of sockets, switches and wiring devices used in incandescent lighting, both in this country and abroad.

Mr. Bryant was president, treasurer, general manager and director of the concern. He was also president, treasurer, general manager and director of the Perkins Electric Switch Mfg. Co., stock in which was owned by Bryant Electric Co. In 1921 he sold out his interests to the Westinghouse Electric Co., but remained as president and general manager until 1927, when he became chairman of the board of the Bryant Company.

Mr. Bryant also served during the war as district chief of ordnance for the state of Connecticut and four counties in western Massachusetts.

At his death Mr. Bryant was a director in the First Bridgeport National Bank, first vice-president and trustee of Peoples Savings Bank, a director in the Bridgeport Hydraulic Co., the Bridgeport Brass Co., the Bead Chain Mfg. Co., Bridgeport Hospital, the Boys' Club and Bridgeport Public Library.

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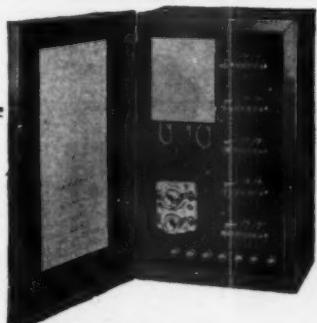
The June, 1930, edition of "Data on Insulating Compounds," has been announced by Mitchell-Rand Mfg. Co., New York City.

* * *

American Machine & Metals Succeeds Manhattan

The business of Manhattan Electrical Supply Co., Inc., has been succeeded by American Machine & Metals, Inc.

C. K. Woodbridge, of Prince & Whitely, formerly president of the Dictaphone Corporation and the Kelvinator Corporation, succeeds Richard H. Brown as president of American Machine & Metals, Inc. The board of directors, in addition to Mr.



For Replacement Of Storage Batteries

The Type B-12 S-S Rectifier Assembly—complete with transformer, fuse block, rectifier units, terminal leads, enclosed in an approved steel cabinet—is ideal for replacing worn-out storage batteries on equipment where low-voltage direct current is necessary.

Try them on the next job—cost is usually less and they work more efficiently. Available in many standard sizes and types. If the job needs special features, write us. Our engineers will be glad to make recommendations. Complete literature sent on request.

**The B-L Electric Mfg. Co.
ST. LOUIS, MO.**

**B-L
RECTIFIERS**

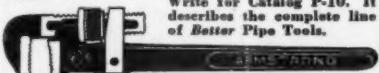


IT even feels different

The ARMSTRONG Pipe Wrench incorporates 10 major improvements in design and materials. It even feels different—is so perfectly balanced that it seems to become a part of you, a stronger hand. The east "frame" or housing, acknowledged a weak point of most "Stillson" type wrenches, has been eliminated. Side wobble is prevented by heavy lugs forged into the handle. The flat spring has been replaced by a hidden coil spring. The nut cannot fall out if jaw is removed. The hardened tool steel lower jaw is replaceable.

Ask to see this improved wrench when at your supplier.

Write for Catalog P-10. It describes the complete line of Better Pipe Tools.



ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
341 N. Francisco Ave. CHICAGO, U. S. A.

ARMSTRONG BROS.

Woodbridge, includes George von Seebeck, Ralph L. Day, Stanley M. Bachman, Col. M. J. Whitson and Harrison Johnson.

The officers and board of directors of the American Machine & Metals, Inc., will continue to operate the subsidiary companies in cooperation with the operating executives.

* * *

Cutler-Hammer, Inc., Milwaukee, Wis., has appointed Walter F. Price, manager of its Los Angeles branch, including southern California and Arizona territory. Mr. Price was formerly member of the sales staff of Cutler-Hammer's San Francisco office, prior to which time he was executive secretary of California Electragists and electrical equipment expert for California Electrical Cooperative Campaign.

* * *

New General Electric Catalog

General Electric catalog GEA-600A, superseding all previous catalogs issued by the company, with the exception of those dealing with railway, mine and industrial supplies and merchandise products, has been issued. The publication is issued every two years. The book, two inches thick, contains 1146 pages, 8x10½ inches, and is profusely illustrated.

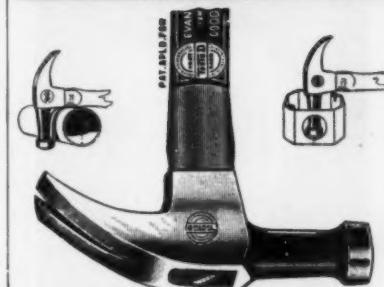
The catalog is thumb-indexed in 16 sections, as follows: Generation, wire and cable, distribution transformers, arresters and capacitors, voltage regulators, switching equipment, switchgear, meters and instruments, lighting equipment, motors, motor applications, industrial control, transportation, industrial heating, miscellaneous, and indexes. In the indexes, products are classified both by subjects and by catalog numbers.

* * *

The Westinghouse Lamp Company and Westinghouse Electric & Mfg. Co. has issued a joint publication entitled "The Way Out of the Twilight Zone." This 33-page booklet describes various types of lighting equipment and instructions for designing good systems of interior lighting and contains many illustrations, including photographs and drawings of lighting equipment, line drawings of industrial applications, and charts showing benefits effected by good illumination.



HANDY-ANDY
VICE STAND
WESTERN WIRE PRODUCTS CO.
3rd and Spruce Sts.
ST. LOUIS, MO. U. S. A.



Electrician's Hammer \$2

An electrical mechanic designed this hammer. The long poll (2 inches) makes it easy to reach into outlet boxes, over pipes and into corners. The claw is built for prying; the handle is seasoned hickory.

4,787 Electricians Use It!

MAIL COUPON TODAY

Evansville Tool Works, Inc.
Evansville, Indiana.

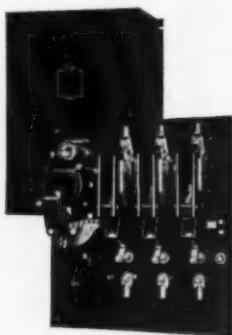
Gentlemen:
I am enclosing my P. O. Money Order for \$2.00. Please send me the No. 77 Electrician's Hammer at once.

Hdwe. Dealer.....

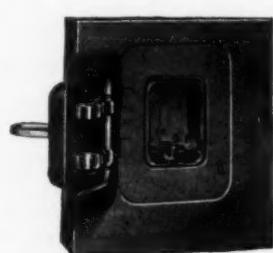
My name.....

Address

New Electrical Products



Two magnetic contactors for heavy duty a.c. service rated for maximum capacities of 300 and 600 amp. are announced by Cutler-Hammer, Inc., Milwaukee, Wis. These are arranged for either 2 or 3-wire control; have continuous duty operating coils, magnet structure and heavy butt type solid copper contacts. An air cushion absorbs shock of magnet on closing. For general use the 300 amp. is mounted in wall type enclosure and 600 amp. in floor type case.



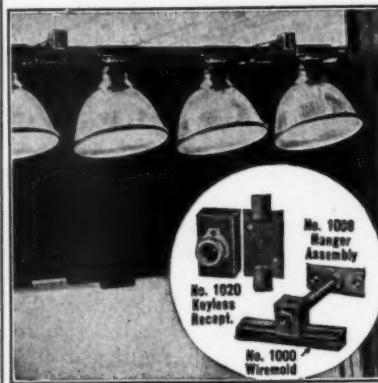
Bull Dog Electric Products Co., Detroit, announces a Saftofuse type of 60-amp. main service meter entrance switch, designed for surface mounting. This switch may also be mounted flush as it is externally operated from the front. One of its features is that the fuses are "dead" when accessible. A hinged outer trim covers line and meter connections when compartment is open.



Three d. c. speed regulating rheostats designed as classes 7350, 7310 and 7210, to be used for starting and regulating the speed of shunt or compound-wound, d. c. motors in non-reversing service, have been placed on the market by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Class 7350 is used where a 50 per cent speed reduction through armature control and 25 per cent increase by field control is desirable; 7310 where a 50 per cent speed reduction through armature control only is desirable and 7210 where an increase up to four times full speed through field control is desirable. With all these types of rheostats the motor is started by moving the rheostat handle to the right. The contact arm is provided with a spring which returns to the "off" position in case of voltage failure, which affords low voltage protection and eliminating the possibility of motor starting without all of the resistors in the circuit.



Pass & Seymour, Inc., Syracuse, N. Y., announce Alabax porcelain sidewalk brackets as follows: AL-3100, pull, with convenience outlet; AL-3101, pull, without convenience outlet; AL-3102, keyless with convenience outlet and AL-3102, keyless, without convenience outlet. The brackets are complete with threaded stem stud adapter and finishing knob for stud mounting on boxes, furnished with 6 in. wire leads unattached with each bracket. Convenience outlet is completely wired. Brackets can be furnished in white, jet black, ivory, light blue, old rose, light green, orchid and white with black striping.



The Wiremold Company, Hartford, Conn., is marketing a show window lighting outfit for wiring both large and small windows. This outfit is installed and assembled in the regular way from Wiremold and supported by hanger assemblies which can be attached direct to Wiremold at regular intervals. The outfit is designed to accommodate all standard make reflectors.



The Arrow Electric Division of Arrow-Hart & Hegeman Electric Co., Hartford, Conn., announces 4 in. two piece porcelain pull receptacles for either ceiling or wall installation, rated 250 watts, 250 volts. These units are made up with various combinations showing chain, cord, insulator, etc., with or without shadeholder ring. The devices can also be supplied with 660 watt mechanism.



A fuse wrench for tightening and loosening caps of ferrule type renewable fuses is announced by Jefferson Electric Co., Chicago. This wrench has a hard wood handle with hole in each end, both of which contain a hardened strip for engaging slot in fuse cap or plug. Fuses of 250 volt, 1 to 30 amp. size, are provided for in one end, and 250 volt, 35 to 60 amp., and 600 volt, 1 to 30 amp., in the other.

"DETROIT" RUBBER COVERED WIRES

(Reg. U. S. Pat. Office)

RUBBER INSULATED
WIRES AND CABLES

LAMP CORDS

PARKWAY CABLES

LEAD ENCASED
RUBBER INSULATED
WIRES AND CABLES"OK" A.B.C. ARMORED
WIRESFLEXIBLE METALLIC
CONDUITDetroit Insulated Wire Company
Detroit, Mich.

Division of General Cable Corporation

There's Nothing Like IDEALS

Here's Why!

Copper coated, tapered spring insert holds RIGHT. No snapping off of wires—and the heavier the pull the stronger it holds.

Contractors landing some of the best and biggest jobs STANDARDIZE on IDEALS.

One size for all common wiring and fixture joints.

Mail
Coupon
Today!



Approved by Underwriters and Factory Mutual Laboratories. Fully protected by BASIC PATENTS.

Ideal Commutator Dresser Co., 1041 Park Ave., Sycamore, Ill. (\$30)

Please send me one trial carton of 100 "Standard Universal" Connectors at \$3.25.

Please send me a free connector.

Full information on Bowles Boring Machine.

Name.....

Address.....

City..... State.....

Jobber.....

Noelke Becomes General Manager Electrotrim

A. H. Noelke, until recently general manager of Paramount Electric Co., Chicago, took up similar duties July 15 with Electrotrim, Inc., of Union City, Indiana. Through his work of the past several years, Mr. Noelke has become known to thousands of electrical contractors, electrical and hardware dealers.



A. H. Noelke.

In assuming his new position, Mr. Noelke will devote the majority of his time to sales of Electrotrim, a new wiring product. Electrotrim, Inc., the manufacturing company, is a recently organized subsidiary of the Backstay Welt Company, an old and established manufacturer of allied products of Union City, Indiana.

Electrotrim, which is a new development in extension wiring, consists of two conductors enclosed in a stitched cover, which incorporates a tacking or nailing strip and a covering strip that protects the wires and hides the fastenings used, to apply it to walls, ceiling, moldings, baseboards or floor.

The body material of Electrotrim is available in a variety of colors and finishes to match decorations or woodwork. The fittings are made of Bakelite. The material has been listed by Underwriters' Laboratories for low tension work.

* * *

The Bryant Electric Co., Bridgeport, Conn., is distributing its new catalog No. 30, containing 152 pages covering Bryant's complete line of wiring devices.

CUT COSTS in ELECTRICAL CONSTRUCTION

Here's a high class tool for the high class workman that wants to get things done. It gets right down to business—no waiting—a surplus of heat at all times. Will do light brazing; economical to operate; sure speeds up work.

**Flows
Solder in
40 Seconds**

An adjustable electric arc supplies enough heat in 40 seconds to start work. Cut-off button enables workman to regulate heat.

5 Interchangeable Tips

Copper tips can be furnished in six styles suitable for all purposes. Extra tips for Junior tool, \$1.25 each.

SODERWAND

*Solders Like Magic**The Electric Arc Soldering Tool*

JUNIOR TOOL, 13 inch, 10 oz., with tip as illustrated, complete \$10.00
SENIOR TOOL, 15½ inch, 16 oz., tip as illustrated, complete \$14.00
PRICES \$1.00 higher west of Rockies.

Ask your jobber salesman, or order direct from factory

SUTTLE EQUIPMENT COMPANY
LAWRENCEVILLE, ILL.



The Security Wire Reel

Costs
Only

\$12.00

Pays for
itself in Time
and Wire Saving

Designed for the Dispensing of Annunciation Wire in Installations and Repairs of Signaling Apparatus in Buildings.

Its full capacity is 6 standard size spools or 8 spools of smaller size. The big feature of this remarkable device is that one man can operate it, feeding as many as eight different wires at a time from one floor, or any part of a building, without the slightest danger of snarling or bunching the wire at any time. This feature alone, saves the contractor many an hour of precious time on every job, yet it is only one of the SECURITY'S numerous advantages over old, cumbersome methods.

BEND THIS COUPON FOR FURTHER DATA

SECURITY APPLIANCE CO.

4070 W. 26th St., Chicago, Ill.

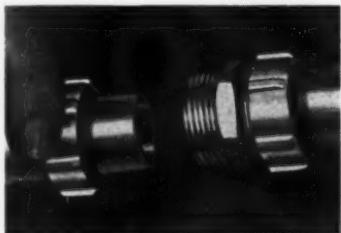
Gentlemen: Please send me further information and circular on The Security Wire Reel.

Name.....

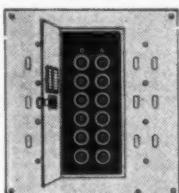
Address.....

Your Jobber.....

New Electrical Products



Steel & Tubes, Inc., Cleveland, Ohio, are manufacturing water-tight couplings and connectors. The water-tight coupling shown above joins lengths of Steeltubes and one coupling is furnished with each 10 ft. length. The water-tight connector fits any standard threaded fitting, outlet box, panel or switch box; has a nut binding the fitting mechanically, bonding it electrically and caulk it against entrance of water. To install just loosen locknut and slide the tubing into place.



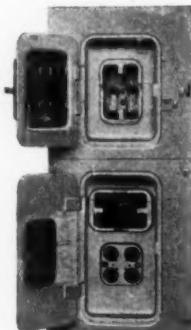
The Wadsworth Electric Mfg. Co., Covington, Ky., announces a flush type branch circuit cabinet for toggle switch equipped with removable dead front, finished in baked black enamel with red fibre insulated test-holes. The trim and dead front are entirely separate so that in roughing-in, cabinet with dead front may be installed without trim. When ready for trim simply mount on cabinet by means of mounting screws, which screw into ears of cabinet. Dead front covering terminals, wiring and part of white porcelain unit is fastened to cabinet proper and independent of trim. Trim and door are square. Trim mounting screws are symmetrically located. Trim is finished in aluminized finish. Cabinets are not equipped with toggle switches.



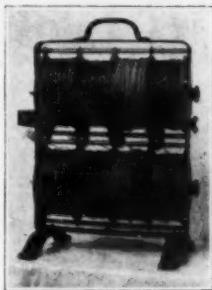
The Jiffy Wire Connector Co., Hackensack, N. J., is marketing "SRK Jr." wire connector. This connector is small and compact, designed for small wiring joints and wherever a small connector must be used on fixtures, etc. The connector has a capacity of from 2 No. 18 to 2 No. 14 with one or two No. 18 solid or stranded, or equivalent.



Hanger Electric Mfg. Co., Chicago, announces the Regnah commercial fixture. This unit has 3 brass spinnings (canopy dome T collar) exclusive of socket; no screws, clamps or other small parts are used to hold glass. It can also be made into pendant or ceiling type without changing parts; is made in any plated or sprayed finish, and several glass units of exclusive design can be furnished, with ceiling fixture either indirect, semi-direct or direct lighting.



A combination meter test switch and distribution panel for range and lighting circuits is announced by Bull Dog Electric Products Co., Detroit. This unit has a 60-amp. externally operated meter test entrance switch of the Saftofuse type and a branch distributing panel consisting of 60-amp. Saftofuse (permitting a 40-amp. fusible circuit for range or other device) and 4 or 6 - 30-amp. plug fusible circuits for lights, hot water heater, etc. The main Saftofuse switch is connected to branch circuits by busses and flexible meter loops with lugs soldered in are also provided.



Security Appliance Co., Chicago, Ill., announces a wire reel with adjustable compartments to take care of eight 5 lb. spools of annunciator wire. This wire reel is made of cold rolled steel with black enameled finish. All joints are firmly riveted; strong steel shafts support reels and it has a feeding bar with adjustable eyelet outlets. In dispensing, each wire passes through a guide forming a parallel, kinkless stream of wires entering the outlet. Dimensions are 20 in. high, 15 in. wide, 12 in. deep and weighs approximately 18 lbs.



The Trumbull Electric Manufacturing Co., Plainville, Conn., announces a cast iron pedestal used for mounting Trumbull "M-7½", "T.M." and "R.M." motor starting switches in base of industrial machines or where a floor mounting is desired. Dimensions of pedestal are base 6 in. square; overall height 7 in. and height to switch seat 4 in.



H. B. Sherman Mfg. Co., Battle Creek, Mich., is manufacturing a tinned splicing sleeve for stranded conductors, made of pure copper, with all surfaces smoothly tinned. This sleeve can be used on either round or sector shaped cable and the dead soft anneal allows a tight mechanical clamping of the sleeve around conductor before soldering.

SILVEY HICKEYS

Won't Slip, Crush nor Kink



A deep groove on the inside of the bend removes pressure where pipe is shortening and thickening; allows it to flow outward instead of pushing it inward. Compare its work with work done by any other hickey. Get a set. Your money back if you're dissatisfied for any reason. Thousands sold without complaint. Electricians swear by it.

Ask Your Jobber

Jobbers everywhere have Silvey Hickies in stock. If yours will not supply you, we will ship direct.

SILVEY PIPE BENDER COMPANY
2125 Brighton Ave. Kansas City, Mo.

MARTIN

Portable Vise Stand and Pipe Bender

Made in Two Sizes
— small stand with chain vise 8 in. cap.; with hinged vise 8½ in. capacity. Large stand with chain vise 4 in. cap.; with hinged vise 4½ in. capacity. Made in Two Sizes
— small stand with chain vise 8 in. cap.; with hinged vise 8½ in. capacity. Large stand with chain vise 4 in. cap.; with hinged vise 4½ in. capacity. Sold on approval. Write today.

H. P. MARTIN & SONS
Owensboro, Ky.

E-Z WIRE STRIPPER

A HANDY TOOL



This inexpensive tool strips wire of 10 to 20 gauge 20 times faster than usual methods.

A MONEY BACK GUARANTEE with every E-Z Wire Stripper. Send for yours now.

\$5.00 LIST

PYRAMID PRODUCTS CO.
2315 South State Street Chicago, Ill.

Keep Up-to-Date

By reading these pages you will acquaint yourself with what is newest and best in electrical supplies and equipment.

When communicating with an advertiser mention

Electrical Contracting

Schweitzer & Conrad Merges with Cutler-Hammer

On July 1, Schweitzer & Conrad, Inc., Chicago, merged with Cutler-Hammer, Inc., Milwaukee, manufacturers of high voltage equipment.

Schweitzer & Conrad will continue to operate as an independent manufacturing and selling unit. No changes will be made in organization or personnel except Mr. Beverly L. Worden, president of Cutler-Hammer, has also been elected president of Schweitzer & Conrad.

The new Schweitzer & Conrad board of directors are: Mr. Conrad, Mr. Schweitzer, F. R. Bacon, chairman of the Cutler-Hammer board, F. L. Pierce and Louis A. Lecher.

* * *

Elkhart Rubber Works, Elkhart, Ind., has appointed new agencies, as follows:

H. E. Recknagel, New Britain, Conn., for the New England States.

Leu-Lieberstein Co., St. Louis, Mo., for Missouri and the St. Louis district.

H. V. Scott & Co., Chicago, Ill., as the Northern Illinois, Indiana, Wisconsin and Western Michigan representative.

* * *

General Electric Sales Below Last Year

According to an announcement by Gerard Swope, president, orders received by General Electric Co., Schenectady, N. Y., for the second quarter of 1930 amounted to \$99,916,027, compared with \$119,351,248 for corresponding three months of last year.

For six months ended June 30 orders received amounted to \$190,313,758, compared with \$220,716,456 for first six months of last year.

Classified Advertising

Position Wanted: Former electrical contractor, 8 years' experience, desires position as manager or superintendent in fixture or wiring department. Married, age 34. Will also consider position of salesman for manufacturer. Remuneration secondary to permanent position with opportunities for advancement. Address P. O. Box 830, Electrical Contracting, 520 N. Michigan Ave., Chicago.

Assistant Sales Manager: Exceptional opportunity with large, long established manufacturer of quality electrical products. Executive ability, experience and good contacts with electrical jobbers are necessary. Write fully, stating experience and salary expected at start. Address P. O. Box 831, Electrical Contracting, 520 N. Michigan Ave., Chicago.



NEW BURGLAR ALARM CONTROL

Operating on 3 dry cells the MIDNIGHT ALARM SYSTEM offers contractors the means of profitable wiring—you install it in the desired place and run wires to all doors and windows.

It's a simple job, too

Write for complete details and price lists

MIDNIGHT ALARM SYSTEM
2327 CHICKASAW STREET
CINCINNATI, OHIO U. S. A.

Color Lighting Equipment For Interiors and Exteriors



Color Hoods
For lamps up to 60 watts.
(Full and half types.)



Laco Color Hoods
For lamps 75 w. to 500 w.
(Single or two tone effects.)



Color Plates
For flood lights, spots, etc.
(Also square and oblong in shape.)



Color Cylinders
For street lighting units,
wall pockets and decorative
lighting effects.
(Made semi or full circular)

Headquarters for Color

*Ask for Illustrated Pamphlet
"PROFITS FROM COLOR"*

REYNOLDS
ELECTRIC COMPANY

MANUFACTURERS REED SIGN FLASHERS
TRAFFIC CONTROLS, SMALL MOTORS, ETC.
2833 W. Congress St. - - Chicago, Ill.



LEWIS TOWER

15th and Locust Sts.
Philadelphia, Pa.

Richard Seltzer, Inc. Owners
Arthur H. Hall Architect
William H. Gravell Consulting Engineer
J. V. Warren Company General Contractors
Charles W. Kester Electrical Contractor

Tenants of the tallest office building in the City of Brotherly Love are assured the highest type of electrical control and convenience by reason of

**WEBER DEPENDABLE
WIRING DEVICES**

Henry D. Sears, Gen'l Sales Agent
80 Boylston St., Boston, Mass.

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*Light enables night
to enhance the beauty
of this college tower . . .*

The floodlighting of architectural masterpieces, office buildings, construction work and other exteriors is an ever-increasing source of revenue for the electrical contractor.

This PERMAFLECTOR installation—the tower at Westminster College, New Wilmington, Pa., is a fine example of scientific floodlighting.

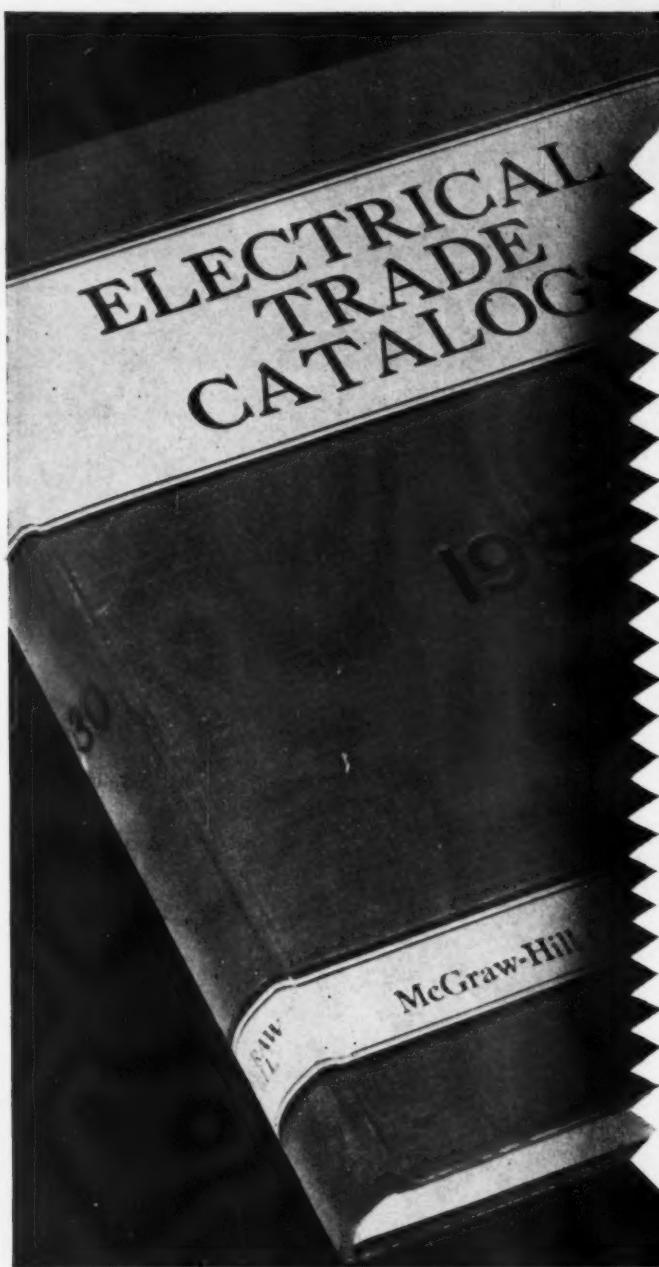
PERMAFLECTOR permanence and brilliance are available also for show window, cove and indirect lighting.

Every PERMAFLECTOR carries the 10-year guarantee. Less than one in 100,000 of all the hundreds of thousands installed have ever had to be replaced because of tarnishing or because of the silvered reflecting surface cracking, checking or peeling. PERMAFLECTORS stay bright.

Pittsburgh Reflector Company
304 Ross Street Pittsburgh, Pa.



Permaflector
FLOOD LIGHTING



**News and Views
of
MODERN CATALOGING
in the
ELECTRICAL TRADE**

Worth Its Weight in Gold!

"The 1930 Edition of Electrical Trade Catalogs has been received, and we must confess to you that it is worth its weight in gold. Thank you for this book of knowledge."

Writes an Electrical Contractor in New York

**Wants Manufacturers to Include
More Data!**

"I wish to thank you for the Electrical Trade Catalogs. The only trouble I find with it is that manufacturers do not co-operate as they should. If manufacturers would follow the General Electric Company and others in their endeavors to help contractors, it would likewise help these manufacturers to get their goods on the market. I could name a number of electrical devices that I have to hunt for each year."

Says a Massachusetts Electrical Contractor

**E.T.C. Supplied the Information on a
Hard-to-Find Item!**

"Thank you for our copy of Electrical Trade Catalogs. Only today this group of catalogs proved its worth when we found listed in it the manufacturer of a certain item which we were unable to purchase in Kansas City. Our order is now on its way to Chicago."

*Writes a firm of Electrical Contractors in
Kansas City*

A Handy Collection of Catalogs!

"We received a volume of Electrical Trade Catalogs today. It is one of the handiest reference catalogs I have ever seen."

*Says the President of a firm of Electrical
Contractors in Miami, Florida*

Use this Modern Catalog File of the Electrical Trade!

Use this handy collection of catalogs whenever you need catalog data on Electrical Supplies and Equipment. Use it to carry out architects' plans and specifications. Use it to help you estimate. It will help you get orders, and place orders. You will find it an indispensable source for information on the products you are interested in.

The new edition of Electrical Trade Catalogs contains the latest available catalogs of manufacturers of electrical products for the trade. These catalogs are built with one outstanding purpose—to give you the information you need on their products without writing for further details. A modern collection of catalogs which merit your continual every-day use!

McGraw-Hill Catalog and Directory Company, Inc.
475 Tenth Avenue at 36th Street

New York, N. Y.

